Installation and service instructions

for contractors

Vitotronic 100
Type HC1B
Digital boiler control unit
Vitotronic 300-K
Type MW2B
Weather-compensated, digital cascade control unit

For applicability, see the last page

VITOTRONIC 100
VITOTRONIC 300-K

Vitotronic 100

Vitotronic 300-K

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Please keep safe.

Safety instructions

Please follow these safety instructions closely to prevent accidents and material losses.

Safety instructions explained

Danger
This symbol warns against the risk of injury.

Please note
This symbol warns against the risk of material losses and environmental pollution.

Note
Details identified by the word "Note" contain additional information.

Target group

These instructions are exclusively designed for qualified personnel.
- Work on gas equipment must only be carried out by a qualified gas fitter.
- Work on electrical equipment must only be carried out by a qualified electrician.
- The system must be commissioned by the system installer or a qualified person authorised by the installer.

Regulations

Observe the following when working on this system
- all legal instructions regarding the prevention of accidents,
- all legal instructions regarding environmental protection,
- the Code of Practice of relevant trade associations,
- all current safety regulations as defined by DIN, EN, DVGW, TRGI, TRF, VDE and all locally applicable standards,
- Gas Safety (Installation & Use) Regulations
  - the appropriate Building Regulation either the Building regulations, the Building Regulation (Scotland), Building Regulations (Northern Ireland),
  - the Water Fittings Regulation or Water Bylaws in Scotland,
  - the current I.E.E. Wiring Regulations.

If you smell gas

Danger
Escaping gas can lead to explosions which may result in serious injury.
- Never smoke. Prevent naked flames and sparks. Never switch lights or electrical appliances ON or OFF.
- Close the gas shut-off valve.
- Open windows and doors.
- Remove all people from the danger zone.
- Notify your gas or electricity supplier from outside the building.
- Shut off the electricity supply to the building from a safe place (outside the building).

Safety instructions (cont.)

If you smell flue gas

Danger
Flue gas can lead to life-threatening poisoning.
- Shut down the heating system.
- Ventilate the boiler room.
- Close all doors leading to the living space.

Working on the system

- When using gas as fuel, also close the main gas shut-off valve and safeguard against unauthorised reopening.
- Isolate the system from the power supply and check that it is no longer 'live', e.g. by removing a separate fuse or by means of a main isolator.
- Safeguard the system against unauthorised reconnection.

Please note
Electronic modules can be damaged by electro-static discharges.
Touch earthed objects, such as heating or water pipes, to discharge static loads.

Repair work

Please note
Repairing components which fulfil a safety function can compromise the safe operation of your heating system.
Replace faulty components only with original Viessmann spare parts.

Ancillary components, spare and wearing parts

Please note
Spare and wearing parts which have not been tested together with the heating system can compromise its function. Installing non-authorised components and non-approved modifications/conversion can compromise safety and may invalidate our warranty.
For replacements, use only original spare parts from Viessmann or those which are approved by Viessmann.

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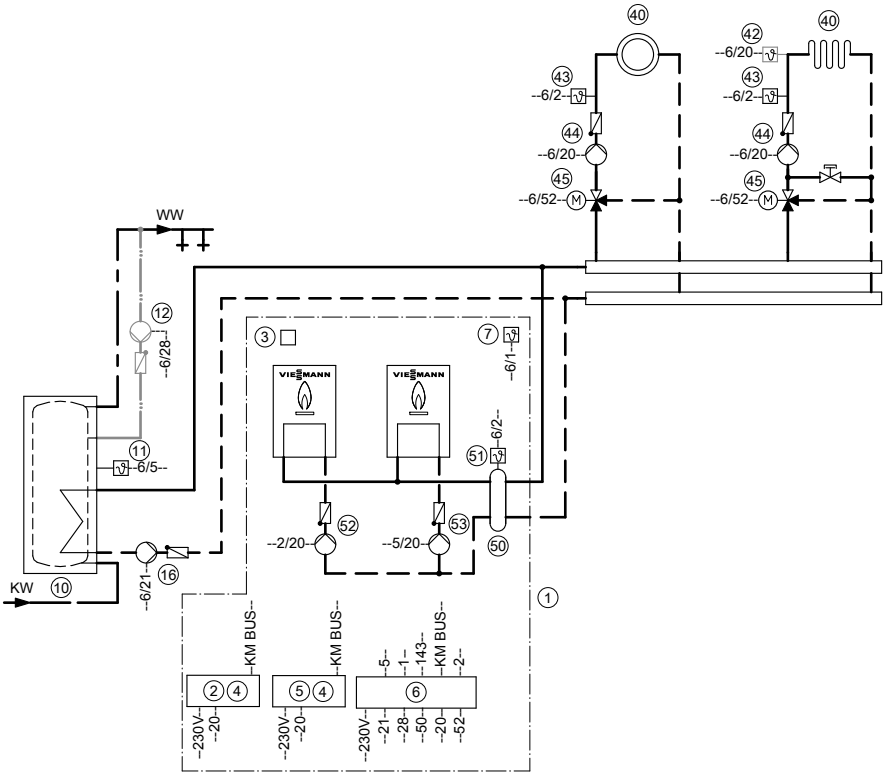
System version ID: 4605016

Multi boiler system with several heating circuits with mixer and low loss header (with/without DHW heating)

Hydraulic installation scheme



Note: This scheme is a general example without shut-off devices or safety equipment. This does not replace the need for local engineering.

System version ID: 4605016 (cont.)

Equipment required

Pos.	Description
①	**Multi boiler system with 2, 3 or 4 Vitodens 200-W, hydraulic cascade with low loss header and connection accessories**
	with
②	Constant temperature control unit
⑤	Constant temperature control unit
③	Cascade communication module
④	Internal extension H1 (accessory)
⑥	Vitotronic 300-K
⑦	Outside temperature sensor ATS
	DHW heating
⑩	DHW cylinder
⑪	Cylinder temperature sensor STS
⑫	DHW circulation pump ZP
⑯	Circulation pump for cylinder heating UPSB
㊵	**Heating circuit with mixer**
㊷	Temperature limiter to restrict the maximum temperature of underfloor heating systems ■ As immersion thermostat **or** ■ As contact thermostat
㊸	Flow temperature sensor, heating circuit M2/M3
㊹	Heating circuit pump, heating circuit M2, M3 **and** 3-way mixer
㊺	Extension kit, mixer (mixer motor and flow temperature sensor ㊸)
㊿	Low loss header
㊶	Flow temperature sensor for low loss header
㊷	Boiler circuit pump
㊸	Boiler circuit pump

System version ID: 4605016 (cont.)

Required codes

Vitotronic 100 (set codes at every Vitotronic 100)

Group	Code	
2	01:2	Multi boiler system with Vitotronic 300-K ***Note*** *Code "00:0" is set automatically.*
2		Setting the boiler number at the Vitotronic 100 of the respective boiler
	07:1	Boiler 1 (delivered condition)
	07:2	Boiler 2
	07:3	Boiler 3
	07:4	Boiler 4
	07:...	Boiler ...

Vitotronic 300-K

Group	Code	
"General"	00:...	System version, see table for coding address 00 in the overview on page 81.
"General"	7E:1	With positive pressure flue gas cascade.
"Cascade"	35:1	Never adjust.
	35:2	Multi boiler system with two boilers
	35:3	Multi boiler system with three boilers
	35:4	Multi boiler system with four boilers (delivered condition)
	35:...	Multi boiler system with ... boilers

Vitotronic 200-H (if installed)

Group	Code	
"General"	97:1	The outside temperature is accepted by the LON BUS.

Installation information for the Vitotronic 100

For installation, commissioning, maintenance and service of Vitodens 200-W with Vitotronic 100: see separate installation instructions and service instructions.

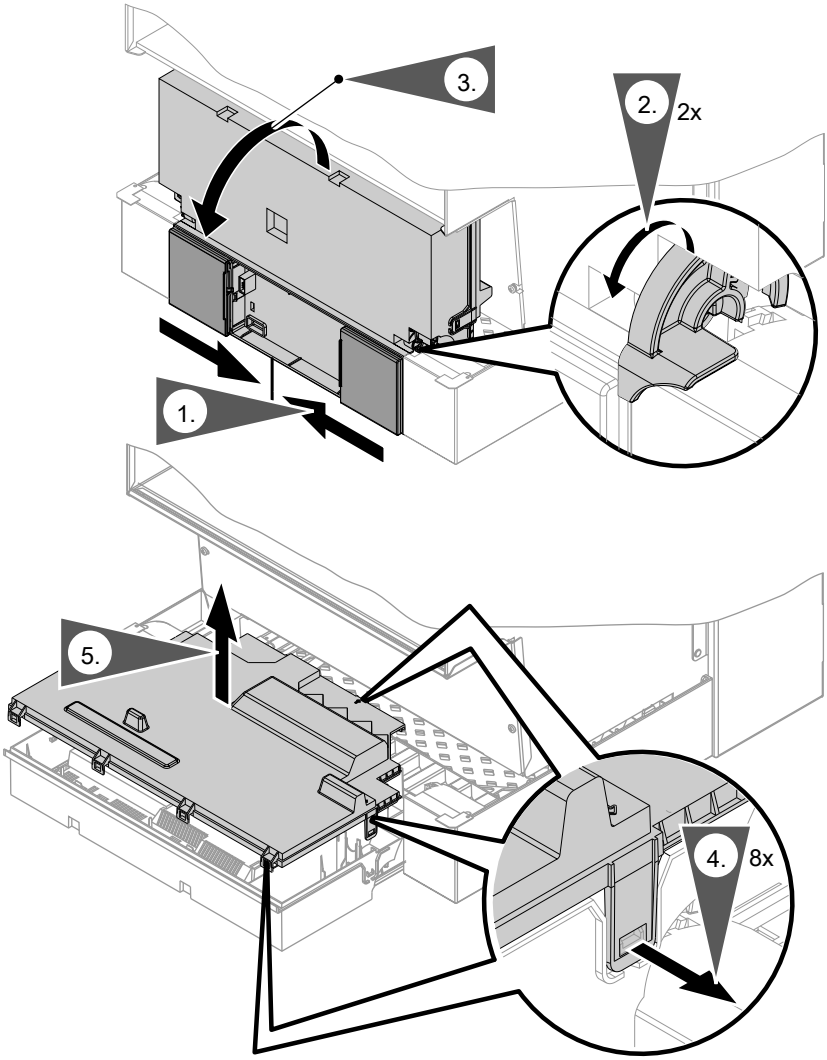
If a DHW cylinder is to be integrated into the system, make the connection at the Vitotronic 300-K (or, if installed, at the Vitotronic 200-H).

Installing a cascade communication module

The communication module is part of the standard delivery.

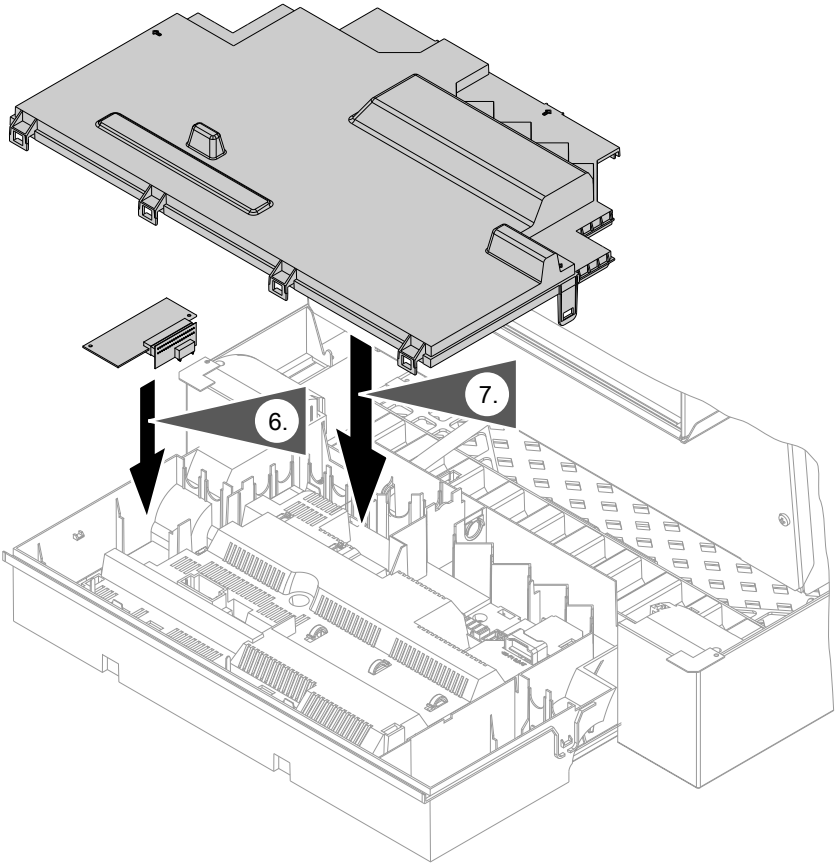
Installing a cascade communication module (cont.)

Opening the control unit casing

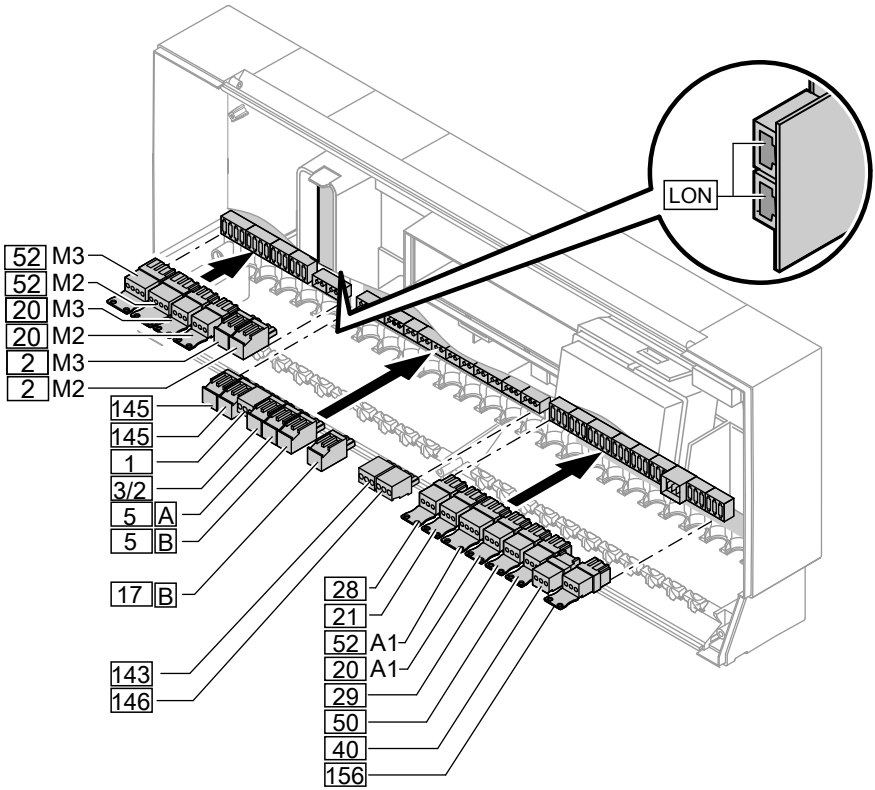


Installing a cascade communication module (cont.)

Installation of the communication module



Overview of electrical connections on the Vitotronic 300-K



PCB, extension for heating circuits 2 and 3 (accessory)

- 2 M2/M3 Flow temperature sensor
- 20 M2/M3 Heating circuit pump
- 52 M2/M3 Mixer motor

Main circuit board, LV

- 1 Outside temperature sensor
- 3/2 Flow temperature sensor, common heating flow/low loss header
- 5 A Cylinder temperature sensor
- 5 B Cylinder temperature sensor 2 for primary store system (accessory)
- 17 B Temperature sensor, primary store system (accessory)
- 143 External hook-ups
- 145 KM BUS subscriber (Vitotronic 100 and accessories, e.g. Vitotrol remote controls)
- 146 External hook-ups
- LON LON BUS, connecting cable for data exchange with the Vitotronic 200-H and the Vitocom

Overview of electrical connections on the… (cont.)

Main PCB 230 V~

[20] A1 Heating circuit pump
or
Primary pump, primary store system

[21] Circulation pump for cylinder heating (accessory)

[28] DHW circulation pump (on site)

[29] Distribution pump

[40] Power supply

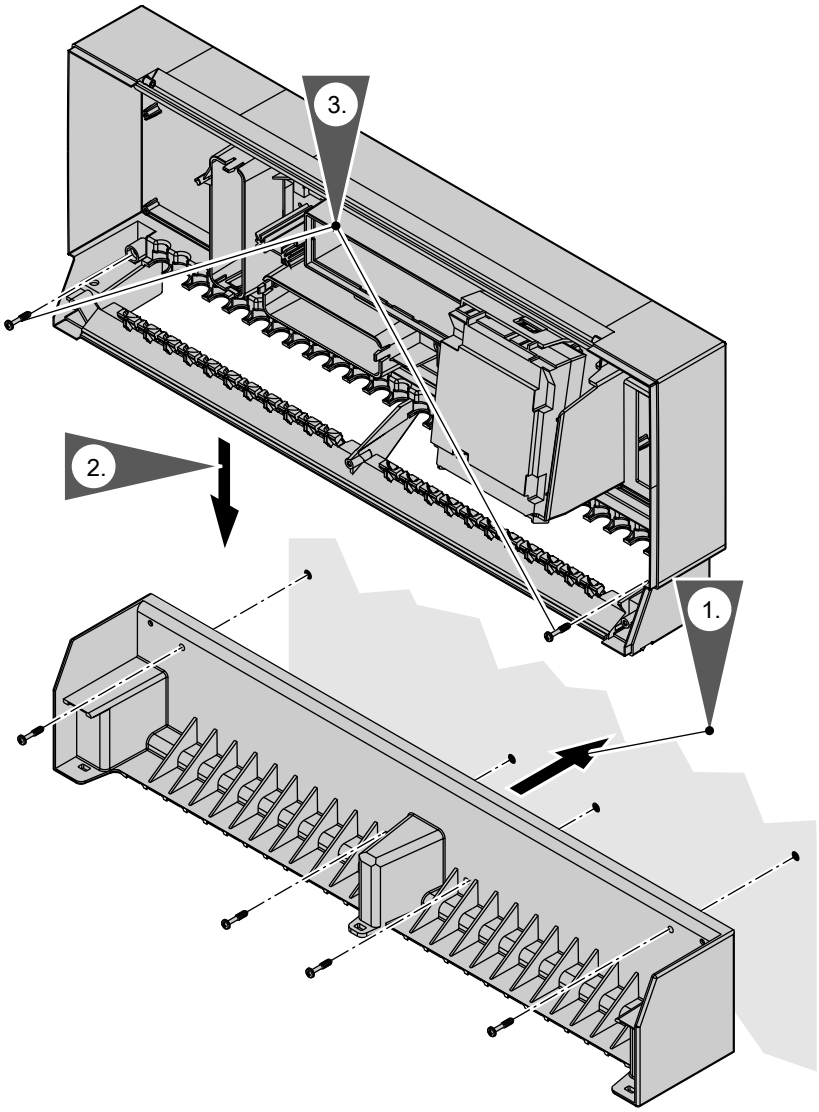
[50] Central fault message

[52] A1 Motor for 3-way mixing valve, primary store system

[156] Internal power supply for mixer extension PCB

- When connecting external switching contacts or components to the safety LV of the control unit ([143] and [146]), observe the requirements of safety category II, i.e. 8.0 mm air and creep path or 2.0 mm insulation thickness from 'live' components.
- For all on-site components (incl. PC/laptops), ensure safe electrical separation to EN 60 335 or IEC 65.
- When connecting plugs, [21], [28], [20] M2/M3, [2] M2/M3, [143] and [146], bundle the individual wires of the cables closely to the terminals.
  This ensures that, in case of failure, for example when a wire becomes detached, the wires cannot drift into the adjacent voltage area.

Installing the mounting bracket and control unit back

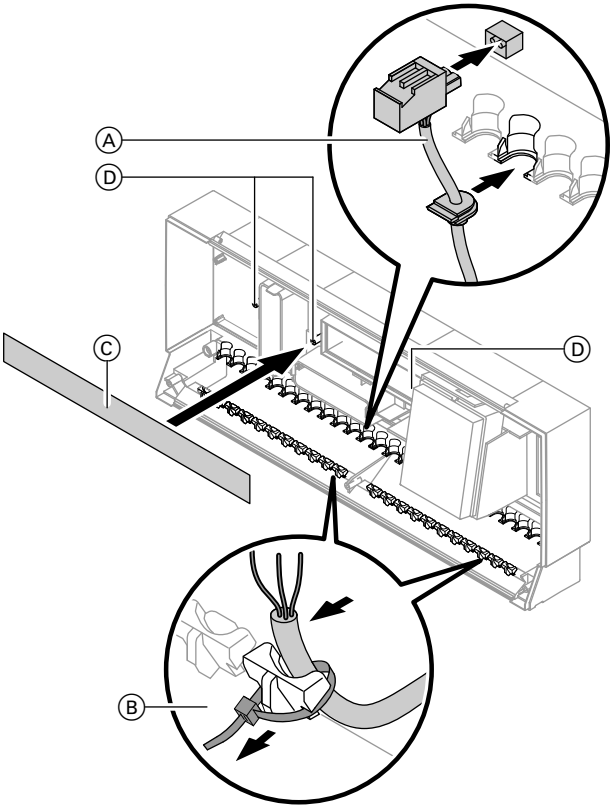


Installing a PCB, extension for heating circuits 2 and 3

Accessory, part no. 7164 403

Separate installation instructions

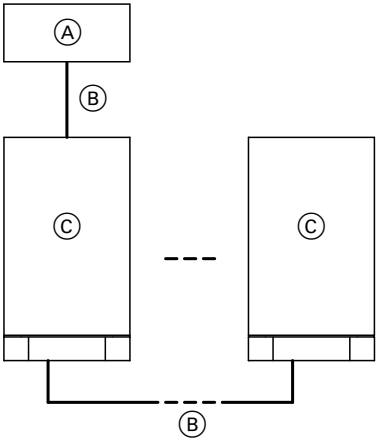
Inserting cables/leads and applying strain relief



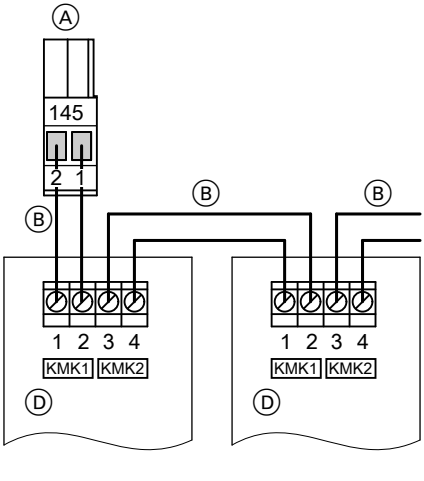
Ⓐ Cables with moulded strain relief
Ⓑ On-site cables; strip up to 100 mm insulation.
Ⓒ Plug-in connection diagram
Ⓓ Fem. mouldings for plug-in connection diagram

Making the connections to the Vitotronic 100

The cascade communication module must be fitted into every Vitotronic 100 (see page 10).

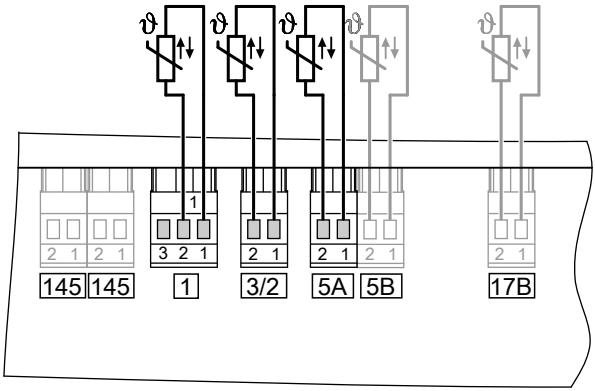


Ⓐ Vitotronic 300-K
Ⓑ 2-core cable (cross-section 2 x 0.5 mm², total length 50 m)
Ⓒ Boiler with Vitotronic 100



Ⓐ Plug 145 for Vitotronic 300-K
Ⓑ 2-core cable (cross-section 2 x 0.5 mm², total length 50 m)
Ⓓ Terminal strip on the cascade communication module in the Vitotronic 100

Connecting sensors



[1] Outside temperature sensor
[3]/[2] Flow temperature sensor common flow/low loss header
[5] A Cylinder temperature sensor 1
[5] B Cylinder temperature sensor 2 for primary store system (accessory)
[17] B Temperature sensor, primary store system (accessory)

Installation point for outside temperature sensor

- North or north-western wall, 2 to 2.5 m above ground level; in multi-storey buildings, in the upper half of the second floor
- Not above windows, doors or ventilation outlets
- Not immediately below balconies or gutters
- Never render over

Outside temperature sensor connection

2-core lead, up to 35 m long with a cross-section of 1.5 mm^2

Connecting pumps

Available pump connections

20 A1 Heating circuit pump
or
Primary pump, primary store system
21 Circulation pump for cylinder heating
28 DHW circulation pump
29 Distribution pump

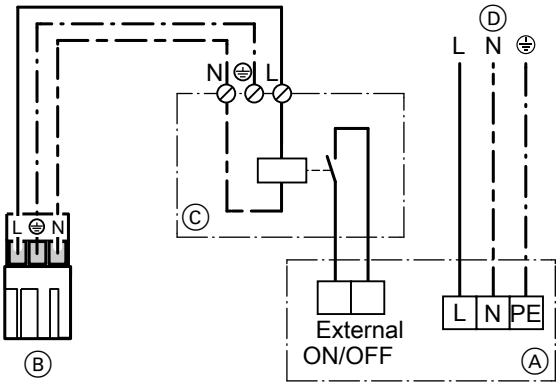
Pumps 230 V~

Rated current	4(2) A~
Recommended connecting cable	H05VV-F3G 0.75 mm² or H05RN-F3G 0.75 mm²

Ⓐ Pump
Ⓑ To the control unit

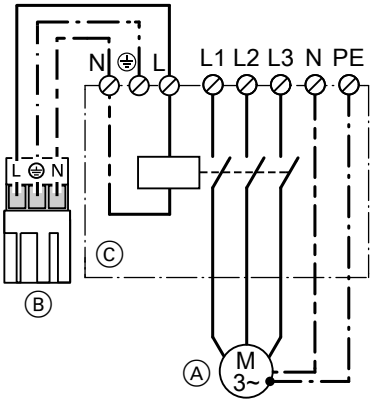
Connecting pumps (cont.)

Pumps with power consumption greater than 2 A



Ⓐ Pump
Ⓑ To the control unit
Ⓒ Contactor
Ⓓ Separate power connection (observe manufacturer's details)

Pumps 400 V~



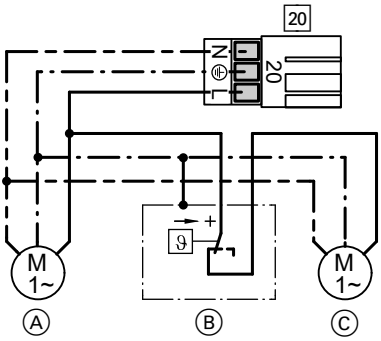
For switching the contactor

Rated current	4(2) A~
Recommended connecting cable	H05VV-F3G 0.75 mm² or H05RN-F3G 0.75 mm²

Ⓐ Pump
Ⓑ To the control unit
Ⓒ Contactor

Connecting pumps (cont.)

Pumps in the underfloor heating circuit



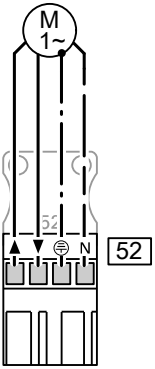
20 To the control unit
Ⓐ Primary pump
Ⓑ Temperature limiter
Ⓒ Secondary pump

Connecting servomotors

Available connections

52 A1 Mixer motor, in conjunction with extension for heating circuits 2 and 3 (accessory)
or
Motor for 3-way mixing valve, primary store system

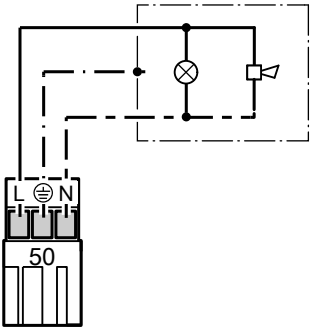
Connecting servomotors (cont.)



Rated voltage	230 V~
Rated current	max. 0.2 (0.1) A~
Recommended connecting cable	H05VV-F4G 0.75 mm² or H05RN-F4G 0.75 mm²
Runtime	5 to 199 s, adjustable via coding address "C3"

▲ Open
▼ Close

Connecting the central fault message facility



Rated voltage	230 V~
Rated current	max. 4 (2) A~
Recommended connecting cable	H05VV-F3G 0.75 mm² or H05RN-F3G 0.75 mm²

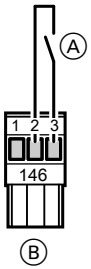
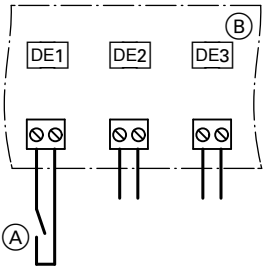
Note
All faults of the entire heating system are passed on, e.g. even including faults on a Vitotronic 100.

External demand via switching contact

Connection options:
- Plug 146
- Extension EA1 (accessory, see page 137)

Connection

Please note
'Live' contacts lead to short circuits or phase failure.
The external connection **must be potential-free**.

Plug 146	Extension EA1
	
Ⓐ Floating contact Ⓑ Plug 146 on control unit	Ⓐ Floating contact Ⓑ Extension EA1

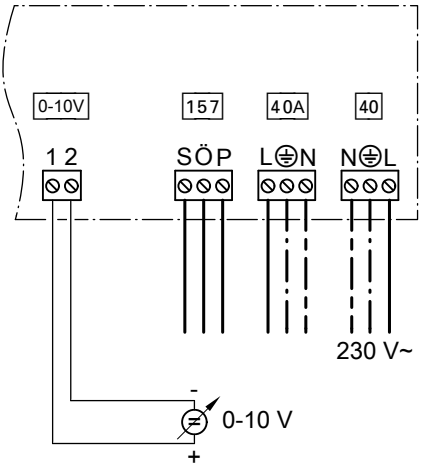
With the contact closed, the boiler burners are started subject to load. They heat to the additional set flow temperature selected in **coding address "9b"** in the **"General"** group. The temperature is limited by this set value and the electronic maximum flow temperature limit (coding address "37" in the **"Cascade"** group).

Codes

Plug 146	Extension EA1
No code required.	Set "5d", "5E" or "5F" in the **"General"** group to 2.

External demand via 0 – 10 V input

Connection at input 0 – 10 V to **extension EA1** (see page 137).
Ensure DC separation between the negative pole and the earth conductor of the on-site voltage source.



0 - 1 V ≙ No default set flow temperature
1 V ≙ Set value 10 °C
10 V ≙ Set value 100 °C
Observe coding address "1E" in the **"General"** group.

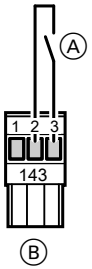
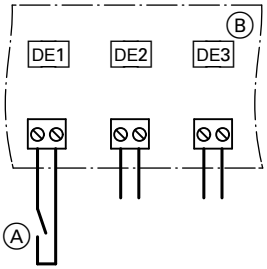
External blocking via switching contact

Connection options:
- Plug 143
- Extension EA1 (accessory, see page 137)

Connection

Please note
'Live' contacts lead to short circuits or phase failure.
The external connection **must be potential-free**.

External blocking via switching contact (cont.)

Plug 143	Extension EA1
	
Ⓐ Floating contact Ⓑ Plug 143 on control unit	Ⓐ Floating contact Ⓑ Extension EA1
With the contact closed, the burners of **all** boilers will be subject to a controlled shutdown. The boiler circuit pumps are switched off.	

! **Please note**
During the block, there is **no frost protection**
of the heating system.

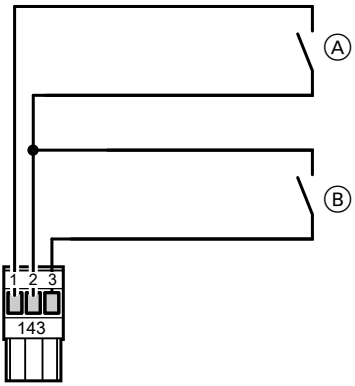
Codes

Plug 143	Extension EA1
Set coding address "99" in the **"General"** group.	Set "5d", "5E" or "5F" in the **"General"** group to 3 or 4.

External "Mixer close"/"Mixer open"

Connection at plug 143

External "Mixer close"/"Mixer open" (cont.)



Ⓐ External "Mixer open" (floating contact)
Ⓑ External "Mixer closed" (floating contact)

Please note
'Live' contacts lead to short circuits or phase failure.
The external connection **must be floating**.

Codes

External "Mixer open"	External "Mixer closed"
This function is assigned to the heating circuits via coding address "9A" in the **"General"** group.	This function is assigned to the heating circuits via coding address "99" in the **"General"** group.

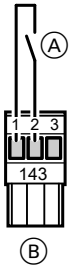
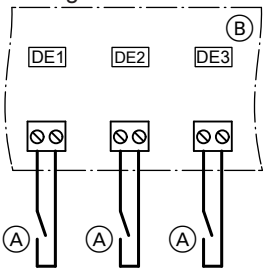
External heating program changeover

Optional connections:
- Plug 143
- Extension EA1 (accessory, see chapter "Components")

Connection

Please note
'Live' contacts lead to short circuits or phase failure.
The external connection **must be floating**.

External heating program changeover (cont.)

Plug 143	Extension EA1
 Ⓐ Floating contact Ⓑ Plug 143 of the control unit	The changeover can be achieved **separately** for heating circuits 1 to 3.  Ⓐ Floating contact Ⓑ Extension EA1

Preselected heating program (Contact open)		Code	Changed heating program (Contact closed)
⏻	Central heating OFF/ DHW OFF	"d5:0" in the **"Heating circuit ..."**group (Delivered condition)	Constant operation with reduced room temperature/DHW heating OFF
or			
🚰	Central heating OFF/ DHW heating ON	"d5:1" in the **"Heating circuit ..."**group	Constant operation with standard room temperature, DHW heating in accordance with coding address "64" in the **"DHW"** group
or			
🚰	Central heating ON/ DHW heating ON		

External heating program changeover (cont.)

Codes

Plug 143	Extension EA1
Via coding address "91" in the **"General"** group, the function can be assigned to the heating circuits.	Set "5d", "5E" or "5F" in the **"General"** group to 1. Via coding address "d8" in the **"Heating circuit..."** group, the function can be assigned to the heating circuits.

Making the LON connection

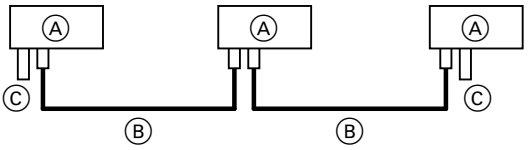
The Viessmann LON system is designed for the "Line" BUS topology with a terminator at both ends (accessories). For free wiring with a central terminator (BUS terminator), please see the "Viessmann LON manual" at **www.viessmann.de/lon**.
The transfer distances for LON are subject to the electrical properties of the respective cabling. For this reason, only use the stated cable types. Use only one type of cable within the LON.
Cable types (on site):
- 2-core cable, CAT 5, screened
- JY(St)Y 2 x 2 x 0.8 mm (telephone cable)

Observe the cabling requirements for the operation of the LON interface FTT 10-A (see www.echelon.com).

All Viessmann equipment is connected via RJ45 plugs. The Viessmann LON system always requires the cores "1" and "2" and the screen. The cores are interchangeable. The installation is therefore safe from pole errors.

Note
When connecting equipment and during wiring, observe the requirements of protection class II, i.e. 8.0 mm air-gap and creep path or maintain a 2.0 mm insulation thickness against live parts.
Ensure a safe electrical separation for all on-site components (incl. PC/laptops) to ensure conformity to EN 60 335 or IEC 65.

Connection with Viessmann LON cable

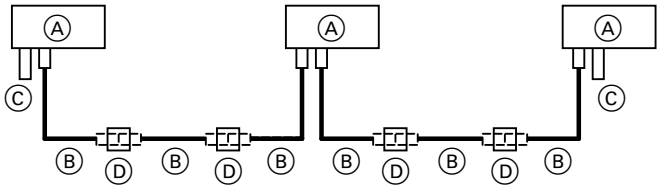


The line may be up to ≤ 7 m long

Making the LON connection (cont.)

Ⓐ Control unit or Vitocom
Ⓑ LON cable, 7 m long
Ⓒ Terminator

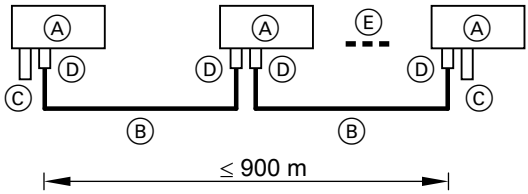
Connection with Viessmann LON cable and coupling



Installation spacing 7 to 21 m

Ⓐ Control unit or Vitocom
Ⓑ LON cable, 7 m long
Max. 3 cables between 2 appliances
Ⓒ Terminator
Ⓓ LON coupling

Connection with on-site cable and LON plug

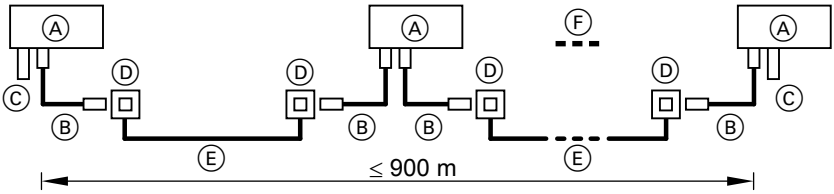


The line may be up to ≤ 900 m (with LON plug)

Ⓐ Control unit or Vitocom
Ⓑ On-site cable
Ⓒ Terminator
Ⓓ LON plug
Ⓔ Up to 99 subscribers

Making the LON connection (cont.)

Connection with LON cable, on-site cable and LON junction box



The line may be up to ≤ 900 m (with LON junction boxes)

Ⓐ Control unit or Vitocom
Ⓑ LON cable, 7 m long
Ⓒ Terminator
Ⓓ LON junction boxes
Ⓔ On-site cable
Ⓕ Up to 99 subscribers

Power supply

Directives

Regulations

Carry out the power supply connection and all earthing measures (i.e. RCD circuit) in accordance with IEC 60364, the requirements of your local power supply utility, and VDE or national regulations. Protect the power cable to the control unit with an appropriate fuse/MCB.

For oil and gas combustion equipment over 100 kW, according to the Sample Combustion Ordinance "FeuVO", an "emergency shutdown" must be installed on site outside the installation room. The national combustion equipment ordinance for your local region must be observed. For combustion equipment to EN 50156-1, the "emergency shutdown" installed on site must comply with the requirements of EN 50156-1.

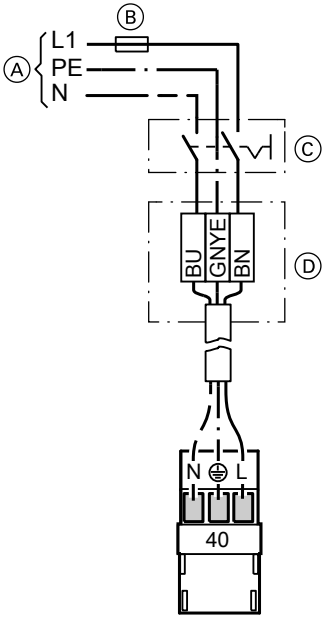
Install the "emergency shutdown" outside the installation room; it must be able to separate **all** non-earthed conductors simultaneously with a gap of 3 mm at least.
We additionally recommend installing an AC/DC-sensitive RCD (RCD class B) for DC (fault) currents that can occur with energy-efficient equipment.

Recommended power cable

3-core cable selected from the following options:
- H05VV-F3G 1.5 mm²
- H05RN-F3G 1.5 mm²

5601 090 GB

Power supply (cont.)



Ⓐ Power supply 230 V~
Ⓑ Fuse
Ⓒ Mains isolator, two-pole (on-site)
Ⓓ Junction box (on site)

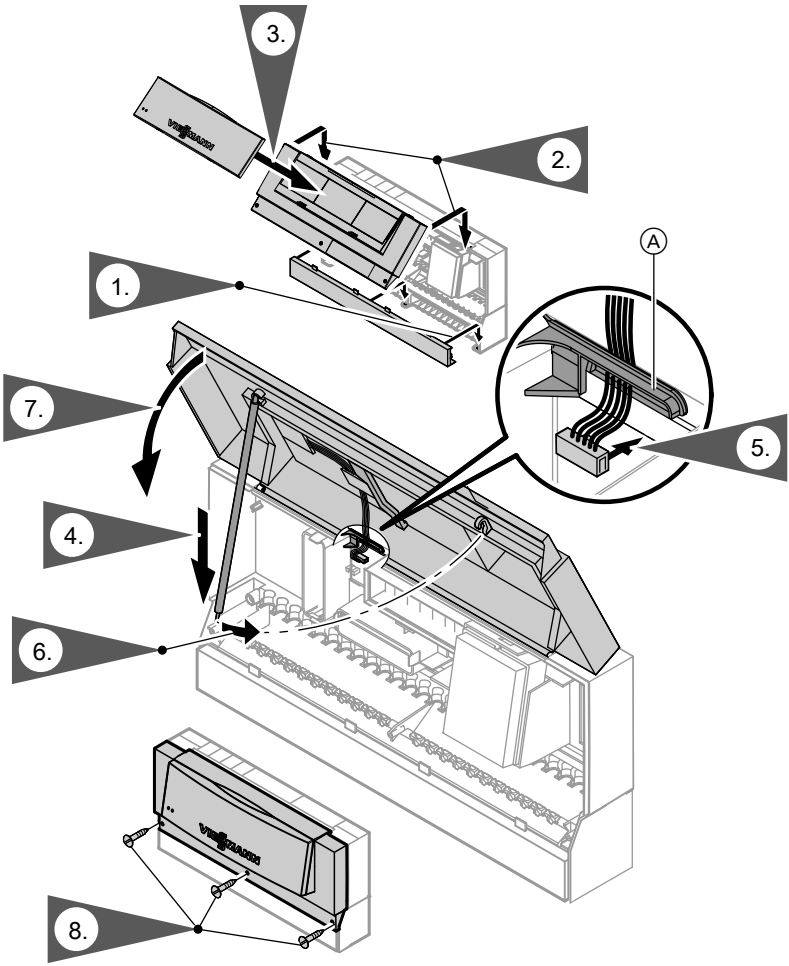
Please note
An incorrect phase sequence can cause damage to the appliance.
Check for phase equality with the power supply connection of the Vitotronic 100.

1. Check whether the power cable to the control unit has appropriate fuse protection.
2. Connect the power cable at the junction box and plug [40] (on-site).

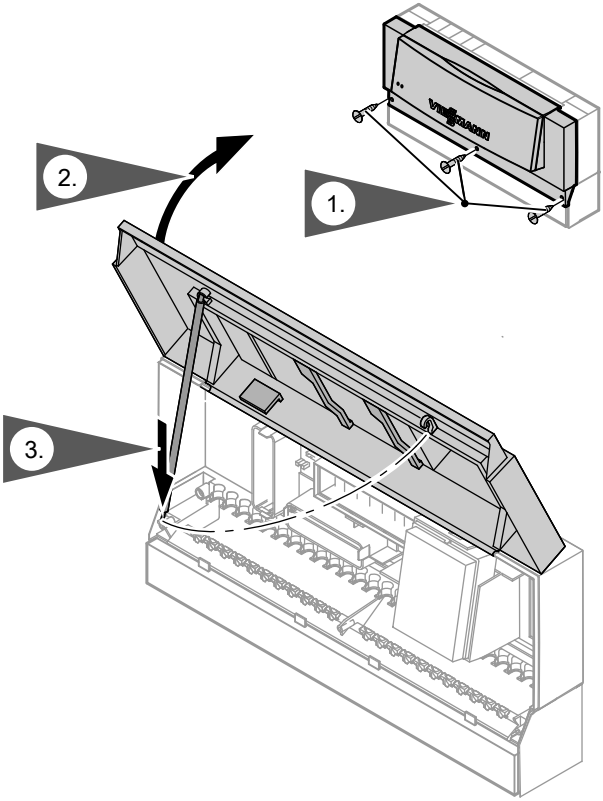
Danger
Incorrect core allocation can cause severe injury and can damage the appliance.
Take care not to interchange wires "L1" and "N":
L1 BN (brown)
N BU (blue)
PE GNYE (green/yellow)

3. Insert plug [40] into the control unit.

Fitting the control unit front



Opening the control unit

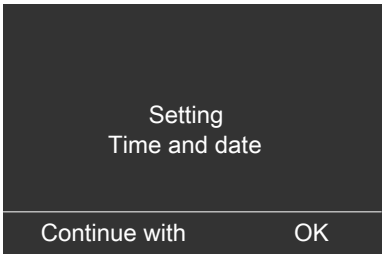


Changing the language

The following is displayed during commissioning (delivered condition German).

Setting the date and time

The time and date need to be reset during commissioning or after a prolonged time out of use.



Matching coding addresses to the system version

Check all addresses in **Code 1** and adjust if required.

Check the following coding addresses and adjust accordingly in **Code 2**:

	Group	Function
"39"	**"Cascade"**	Permanent lead boiler
"3A"	**"Cascade"**	Permanent last boiler
"4C"	**"General"**	Plug 20 function
"55"	**"DHW"**	Cylinder temperature control function
"77"	**"General"**	LON subscriber number
"7A"	**"General"**	Central control
"98"	**"General"**	Viessmann system number
"9C"	**"General"**	Monitoring LON subscribers

Selecting the boiler sequence (if required)

Subject to the codes set in the **"Cascade"** group and internal control calculations, the control unit offers various boiler sequences. Coding addresses that influence the boiler sequence:

"38"	Changing the lead boiler and the boiler sequence
"39"	Permanent lead boiler
"3A"	Permanent last boiler
"41" to "44"	ECO thresholds
"65", "6F"	ECO thresholds
"74", "7d"	ECO thresholds

- Via the ECO threshold, every boiler can be blocked or enabled subject to the outside temperature.
- The ECO threshold is disabled if the boiler is required to achieve the set flow temperature in the case of enabled boilers failing.
- At least the lead boiler remains in operation when all boilers in a system would otherwise be blocked via the ECO threshold.

1. Press ☰.
2. **"Boiler sequence"**
3. Select the required boiler sequence and confirm with **"OK"**.

Connecting the control unit to the LON system

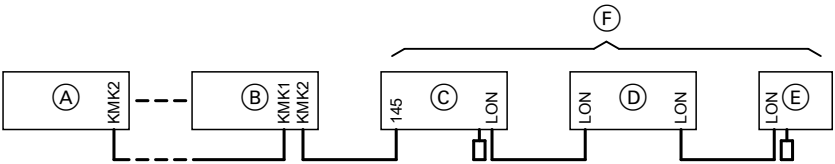
- Vitotronic 300-K and 200-H:
  The LON communication module (accessory) must be fitted.

  Installation and service instructions, Vitotronic 200-H

- Within one LON, the same subscriber number must **not** be allocated twice.
- Within one LON, the system number (coding address "98" in the **"General"** group) must always be the same.
- **Only one Vitotronic** may be programmed as fault manager.
- The data transfer via LON can take several minutes.

Connecting the control unit to the LON system (cont.)

Example of a multi boiler system



Ⓐ Vitotronic 100
Ⓑ Vitotronic 100
Ⓒ Vitotronic 300-K
Ⓓ Vitotronic 200-H
Ⓔ Vitocom
Ⓕ LON

Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
Multi boiler system. **Set** code "01:2" in group 2 **"Boiler"**.	Multi boiler system. **Set** code "01:2" in group 2 **"Boiler"**.	—	—	—
Boiler number 1. Code "07:1" in group 2 **"Boiler"** (delivered condition).	Boiler number 2 to ... **Set** code "07:2 to ..." in group 2 **"Boiler"**.	—	—	—
With cascade communication module. Code "76:2" in group 1 **"General"**; automatic recognition.	With cascade communication module. Code "76:2" in group 1 **"General"**; automatic recognition.	With LON communication module. Code "76:1" in the **"General"** group; automatic recognition.	With LON communication module. Code "76:1" in the **"General"** group; automatic recognition.	—

Connecting the control unit to the LON system (cont.)

Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
—	—	Number of connected boilers. **Set** codes "35:1" to "35:8" in the **"Cascade"** group.	—	—
—	—	Subscriber no. 5. Code "77:5" in the **"General"** group.	Subscriber no. 10. Code "77:10" in the **"General"** group.	Subscriber no. 99.
—	—	Control unit is fault manager Code "79:1" in the **"General"** group.	Control unit is not fault manager Code "79:0" in the **"General"** group.	Device is fault manager.
—	—	Control unit transmits the time Code "7b:1" in the **"General"** group.	Control unit receives the time **Set** code "81:3" in the **"General"** group.	Device receives the time.
—	—	Flue gas cascade with positive pressure. Set code "7E:1" in the **"General"** group.	—	—

Connecting the control unit to the LON system (cont.)

Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ
—	—	Control unit transmits outside temperature Code "97:2" in the **"General"** group.	Control unit receives outside temperature **Set** code "97:1" in the **"General"** group.	—
—	—	LON subscriber remote monitoring. Code "9C:20" in the **"General"** group.	LON subscriber remote monitoring. Code "9C:20" in the **"General"** group.	—

Carrying out the LON subscriber check

The subscriber check is used to test communication with the system devices connected to the fault manager.

Preconditions:
- The control unit must be programmed as **fault manager** (code "79:1").
- The LON subscriber number must be programmed in all control units.
- The LON subscriber list in the fault manager must be up to date.

Carry out subscriber check:

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Service functions"**
3. **"Subscriber check"**
4. Select subscriber (e.g. subscriber 10).
   The subscriber check for the selected subscriber is initiated.
   - Successfully tested subscribers are designated with **"OK"**.
   - Unsuccessfully tested subscribers are designated with **"Not OK"**.

Note
*To carry out a new subscriber check, create a new subscriber list with **"Delete list?"** (subscriber list is updated).*

Information regarding Vitotronic 200-H
*During the subscriber check, the display for the relevant subscriber shows the subscriber no. and **"Wink"** for approx. 1 min.*

Testing actuators on the Vitotronic 100

Carrying out relay test

1. Press **OK** and ☰: simultaneously for approx. 4 s.
   🔧 flashes on the display.
2. Select ▶ "⇄" and confirm with **OK**.
3. Select required actuator (output) with ▲/▼ (see the following table).
4. Confirm selected actuator with **OK**. The display shows the number for the activated actuator and "**ON**".
5. Exit the service level (see page 44).

The following actuators can be switched subject to system equipment level:

Display	Explanation
0	All actuators have been switched off.
1	Burner operates at min. output.
2	Burner operates at max. output.
3	Internal output [20] is enabled.

Testing actuators and sensors on the Vitotronic 300-K

Carrying out relay test

1. Press **OK** and ☰: simultaneously for approx. 4 s.
2. **"Actuator test"**

The following actuators can be switched subject to system equipment level:

Display		Explanation
"All actuators"	OFF	All actuators have been switched off.
"Output 20"	ON	Output 20 active.
"Output 52"	Open	
"Output 52"	Neutral	
"Output 52"	Close	
"Cylinder prim pump"	ON	Output circulation pump for cylinder heating active.
"DHW circ pump"	ON	Output DHW circulation pump active.
"Output 29"	ON	Output 29 active.
"Central fault message"	ON	
"Htg circ pump HC2"	ON	Heating circuit pump output active (heating circuit with mixer M2).

Testing actuators and sensors on the Vitotronic… (cont.)

Display		Explanation
"Mixer HC2"	Open	Output "Mixer open" active (heating circuit with mixer M2).
"Mixer HC2"	Close	Output "Mixer close" active (heating circuit with mixer M2).
"Htg circ pump HC3"	ON	Output heating circuit pump active (heating circuit with mixer M3).
"Mixer HC3"	Open	Output "Mixer open" active (heating circuit with mixer M3).
"Mixer HC3"	Close	Output "Mixer close" active (heating circuit with mixer M3).
"EA1 output 1"	ON	Contact "P - S" on plug 157 of extension EA1 closed.
"AM1 output 1"	ON	Output 1 active.
"AM1 output 2"	ON	Output 2 active.
"Solar circuit pump"	ON	Output for solar circuit pump 24 at solar control module , type SM1 active.
"Solar circ pmp min"	ON	Output for solar circuit pump 24 at solar control module, type SM1, switched to minimum speed.
"Solar circ pmp max"	ON	Output for solar circuit pump 24 at solar control module, type SM1, switched to maximum speed.
"SM1 output 22"	ON	Output 22 on solar control module, type SM1 active.

Information regarding the mixer motor rotational direction
The flow temperature must rise when the mixer opens. If the temperature drops, either the motor is turning in the wrong direction or the mixer set is incorrectly fitted (observe the mixer installation instructions).

Checking sensors

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Diagnosis"**
3. Select group (see page 47).

Testing actuators and sensors on the Vitotronic… (cont.)

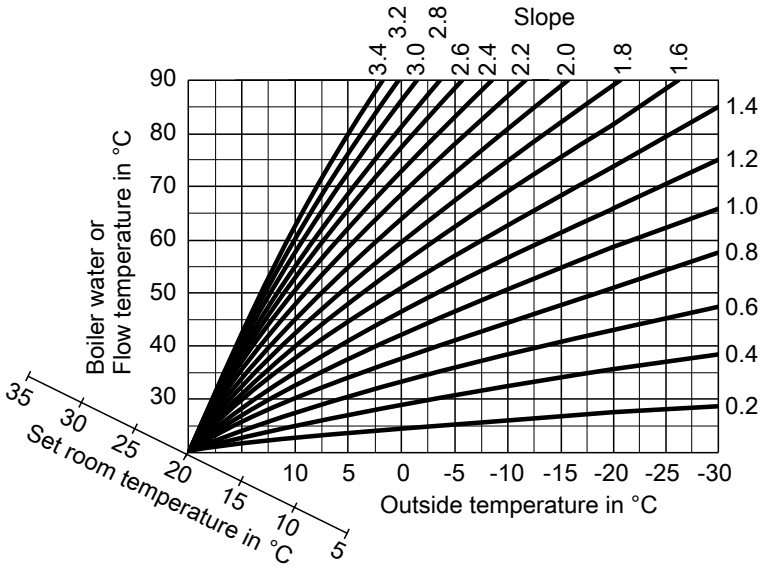
4. Scan actual temperature of the relevant sensor.

Adjusting the heating curve

The heating curves illustrate the relationship between the outside temperature and the boiler water or flow temperature.
To put it simply: The lower the outside temperature, the higher the boiler water or flow temperature.
The room temperature, in turn, depends on the boiler water or flow temperature.

Settings in the delivered condition:
- Slope = 1.4
- Level = 0

Note
If the heating system includes heating circuits with mixers, then the flow temperature of the heating circuit without mixer is higher by a selected differential (8 K in the delivered condition) than the flow temperature of the heating circuits with mixers.
The differential temperature is adjustable via coding address "9F" in the ***"General"*** *group.*



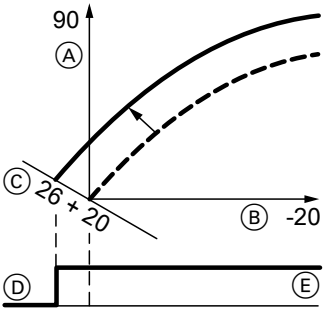
Adjusting the heating curve (cont.)

Slope setting ranges:
- Underfloor heating systems: 0.2 to 0.8
- Low temperature heating systems: 0.8 to 1.6

Selecting the set room temperature

Individually adjustable for each heating circuit.
The heating curve is offset along the axis of the set room temperature. When the heating circuit pump logic function has been enabled, the curve modifies the starting and stopping characteristics of the heating circuit pump.

Standard set room temperature



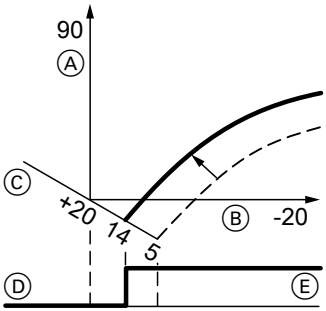
Example 1: Change in the standard set room temperature from 20 to 26 °C

Ⓐ Boiler water temperature or flow temperature in °C
Ⓑ Outside temperature in °C
Ⓒ Set room temperature in °C
Ⓓ Heating circuit pump "OFF"
Ⓔ Heating circuit pump "ON"

Changing the standard set room temperature

Operating instructions

Reduced set room temperature



Example 2: Change in the reduced set room temperature from 5 °C to 14 °C

Ⓐ Boiler water temperature or flow temperature in °C
Ⓑ Outside temperature in °C
Ⓒ Set room temperature in °C
Ⓓ Heating circuit pump "OFF"
Ⓔ Heating circuit pump "ON"

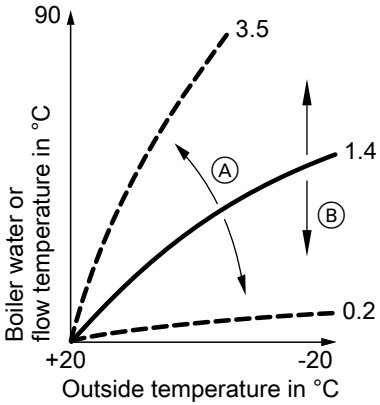
Changing the reduced set room temperature

Operating instructions

Changing the slope and level

Individually adjustable for each heating circuit.

Adjusting the heating curve (cont.)



Ⓐ Changing the slope
Ⓑ Changing the level (vertical parallel offset of the heating curve)

Extended menu:

1. ☰
2. **"Heating"**
3. Select heating circuit.
4. **"Heating curve"**
5. **"Slope"** or **"Level"**
6. Select heating curve according to the system requirements.

Calling up the service level

1. Press **OK** and ☰ simultaneously for approx. 4 s.
   🔧 flashes on the display.
2. Select required function, e.g. relay test.

Exiting the service level

1. Press ▶ to select ⑦.
2. Confirm with **OK**.
   "OFF" flashes.
3. Confirm with **OK**.

   Note
   The system exits the service level automatically after 30 min.

Scanning operating data

Operating data can be scanned in the **"i"** menu.

Operating instructions

Brief scan

1. Press **OK** and ☰ simultaneously for approx. 4 s.
   🔧 flashes on the display.
2. Confirm with **OK**.
3. Select the required scan with ▲/▼. For example, "b" for "Boiler coding card" (see following table).
4. Confirm selected scan with **OK**.

Brief scan (cont.)

For explanations of individual scans, see the following table:

Brief scan	Display				
8	8	8	8	8	8
0		System scheme	Software version Control unit		Software version Programming unit
1		Software version Burner control unit			Software version Cascade communication module
3			Set boiler water temperature		
A			Common demand temperature		
4		Burner control unit type		Appliance type	
b			Max. heating output in %		
C		Boiler coding card (hexadecimal)			
c		Version Appliance		Version Burner control unit	
d				Variable speed pump 0 none 1 Wilo 2 Grundfos	Software version Variable speed pump 0: no variable speed pump
F ①	Output 28 configuration (value corresponds to setting in coding address "53" in group 1 **"General"**)	Internal details for calibration			

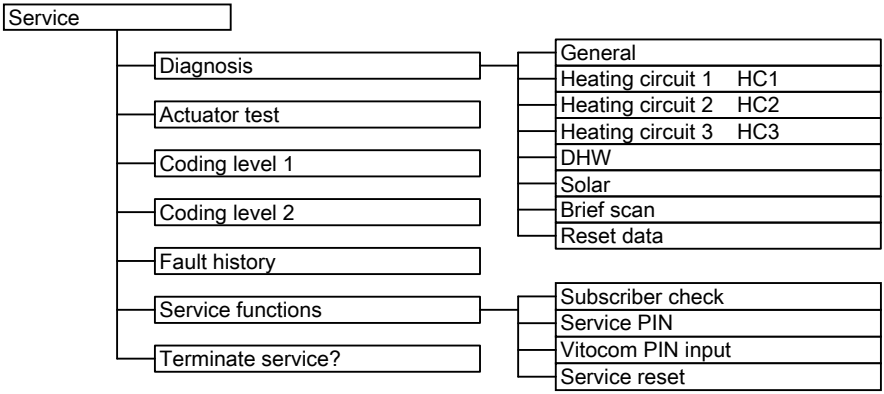
Brief scan (cont.)

Brief scan	**Display**				
0	0	0	0	0	0
	Extension EA1				
F ③	Output 157 configuration (value corresponds to setting in coding address "36" in group 1 **"General"**)	Output 157 switching state 0: OFF 1: ON	Input DE1 switching state 0: open 1: closed	Input DE2 switching state 0: open 1: closed	Input DE3 switching state 0: open 1: closed
F ④	Software version		External hook-up 0 - 10 V Display in %		

Calling up the service menu

Press **OK** and ☰ simultaneously for approx. 4 s.

Service menu overview



"Coding level 2" is only displayed if this level has been enabled:

Press **OK** and ⮌ simultaneously for approx. 4 s.

Exiting the service menu

1. Select **"Terminate service?"**.
2. Select **"Yes"**.
3. Confirm with **OK**.

Note
The system exits the service menu automatically after 30 min.

Scanning operating data

Operating data can be scanned in six areas (see **"Diagnosis"** in the overview "Service menu").
Operating data on heating circuits with mixers and solar can only be scanned if the components are installed in the system.

For further information on operating data, see chapter "Brief scan".

Note
"- - -" appears on the display if a sensor that has been scanned is faulty.

Scanning operating data (cont.)

Calling up operating data

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Diagnosis"**
3. Select required group, e.g. **"General"**.

Resetting operating data

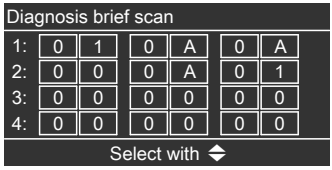
Saved operating data (e.g. hours run) can be reset to 0.
The value "Adjusted outside temp" is reset to the actual value.

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Diagnosis"**
3. **"Reset data"**
4. Select required value or **"All details"**.

Brief scan

In the brief scan, you can scan temperatures, software versions and connected components, for example.

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. **"Diagnosis"**
3. **"Brief scan"**.
4. Press **OK**.
   The display shows 11 rows with 6 fields each.



For an explanation of the relevant values in the individual lines, see the following table:

Row (brief scan)	Field					
	1	2	3	4	5	6
1:	System schemes 01 to 10		Control unit software version		Programming unit software version	
2:	0	0	0	0	Device identification ZE-ID	

Brief scan (cont.)

Row (brief scan)	Field					
	1	2	3	4	5	6
3:	0	0	Number of KM BUS subscribers		Software version Solar control module, type SM1	
4:	0	0	0	0	0	0
5:	0	0	0	0	Software version, extension AM1	Software version, extension EA1
6:	0	0	0	0	0	0
7:	Subnet address/system number		Node address		0	0
8:	SNVT config. 0: Auto 1: Tool	Software version Comm. coproc.	Software version Neuron chip		Number of LON subscribers	
	Heating circuit HC1		**Heating circuit HC2**		**Heating circuit HC3**	
9:	Remote control 0: none 1: Vitotrol 200A or Vitotrol 200RF 2: Vitotrol 300A or Vitohome 300	Software version Remote control	Remote control 0: none 1: Vitotrol 200A or Vitotrol 200RF 2: Vitotrol 300A or Vitohome 300	Software version Remote control	Remote control 0: none 1: Vitotrol 200A or Vitotrol 200RF 2: Vitotrol 300A or Vitohome 300	Software version Remote control
10:	0	0	0	0	0	0

Brief scan (cont.)

Row (brief scan)	**Field**					
	1	**2**	**3**	**4**	**5**	**6**
11:	0	0	Software version, extension for heating circuits 2 and 3 with mixer ***Note*** *The displays in fields 3 and 5 are the **same**.*	0	Software version, extension for heating circuits 2 and 3 with mixer	0

Fault display

Fault display on the Vitotronic 100:

Boiler service instructions

If there is a fault, the red fault display on the control unit flashes. **"Fault"** is displayed and ⚠ flashes.
The fault code is displayed with **OK**.

Note
If a central fault message facility is connected, this is started.

For an explanation of the fault code, see the chapter "Fault codes".
For some faults, the type of fault is also displayed in plain text.

Acknowledging a fault

Follow the instructions on the display.

Note
The fault message is transferred to the menu.
A fault messaging facility, if connected, will be switched off.
If an acknowledged fault is not remedied, the fault message will be re-displayed the following day and the fault message facility restarted.

Calling up acknowledged fault messages

Extended menu:

1. ☰:
2. **"Fault"**

Calling up fault codes from the fault memory (fault history)

The 10 most recent faults (including those remedied) are saved and can be called up.
Faults are sorted by date.

1. Press **OK** and ☰: simultaneously for approx. 4 s.
2. **"Fault history"**
3. **"Display?"**

Fault codes

Displayed fault code	System characteristics	Cause	Measures
10	Activates after 0 °C outside temperature.	Short circuit, outside temperature sensor	Check outside temperature sensor (see page 130).
18	Activates after 0 °C outside temperature.	Lead break, outside temperature sensor	Check outside temperature sensor (see page 130)
19	Activates after 0 °C outside temperature.	Communication fault, outside temperature sensor RF	Check wireless connection (place outside temperature sensor RF close to the wireless base station). Log off outside temperature sensor then log on again. Replace if necessary (see separate installation and service instructions).
20	Standalone control unit without flow temperature sensor (poss. flow temperature not high enough).	Short circuit, common flow temperature sensor/temperature sensor, low loss header	Check the sensor (see page 129).
28	Standalone control unit without flow temperature sensor (poss. flow temperature not high enough).	Lead break, common flow temperature sensor/temperature sensor, low loss header	Check the sensor (see page 129).
40	Mixer is being closed.	Short circuit, flow temperature sensor, heating circuit with mixer M2 (heating circuit 2)	Check flow temperature sensor (see page 129).
44	Mixer is being closed.	Short circuit, flow temperature sensor, heating circuit with mixer M3 (heating circuit 3)	Check flow temperature sensor (see page 129).

Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
48	Mixer is being closed.	Lead break, flow temperature sensor, heating circuit with mixer M2 (heating circuit 2)	Check flow temperature sensor (see page 129).
4C	Mixer is being closed.	Lead break, flow temperature sensor, heating circuit with mixer M3 (heating circuit 3)	Check flow temperature sensor (see page 129).
50	Cylinder primary pump "ON": Set DHW temperature = set flow temperature Priority control is cancelled. or With primary store system: Cylinder heating is started and stopped by cylinder temperature sensor 2.	Short circuit, cylinder temperature sensor 1	Check cylinder temperature sensor (see page 129).
51	With primary store system: Cylinder heating is started and stopped by cylinder temperature sensor 1.	Short circuit, cylinder temperature sensor 2	Check cylinder temperature sensor (see page 129).
54	Control mode.	Maintenance or fault on Vitotronic 100 of boiler 5.	Check maintenance display or fault code on the respective Vitotronic 100.
55	Control mode.	Maintenance or fault on Vitotronic 100 of boiler 6.	Check maintenance display or fault code on the respective Vitotronic 100.

Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
56	Control mode.	Maintenance or fault on Vitotronic 100 of boiler 7.	Check maintenance display or fault code on the respective Vitotronic 100.
57	Control mode.	Maintenance or fault on Vitotronic 100 of boiler 8.	Check maintenance display or fault code on the respective Vitotronic 100.
58	Cylinder primary pump "ON": Set DHW temperature = set flow temperature Priority control is cancelled. or With primary store system: Cylinder heating is started and stopped by cylinder temperature sensor 2.	Lead break, cylinder temperature sensor 1	Check cylinder temperature sensor (see page 129).
59	With primary store system: Cylinder heating is started and stopped by cylinder temperature sensor 1.	Lead break, cylinder temperature sensor 2	Check cylinder temperature sensor (see page 129).
5C	Control mode.	Communication fault, Vitotronic 100 of boiler 5	Check and replace cascade communication module and connecting cable if required.
5d	Control mode.	Communication fault, Vitotronic 100 of boiler 6	Check and replace cascade communication module and connecting cable if required.
5E	Control mode.	Communication fault, Vitotronic 100 of boiler 7	Check and replace cascade communication module and connecting cable if required.

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Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
5F	Control mode.	Communication fault, Vitotronic 100 of boiler 8	Check and replace cascade communication module and connecting cable if required.
70	With primary store system: 3-way mixing valve "Closed"; no DHW heating.	Short circuit, temperature sensor 17 B	Check temperature sensor (see page 129).
78	With primary store system: 3-way mixing valve "Closed"; no DHW heating.	Lead break, temperature sensor 17 B	Check temperature sensor (see page 129). Without temperature sensor: Set code "4b:0" in the **"General"** group.
84	Control mode.	Maintenance or fault on Vitotronic 100 of boiler 1	Check maintenance display or fault code on the respective Vitotronic 100.
85	Control mode.	Maintenance or fault on Vitotronic 100 of boiler 2	Check maintenance display or fault code on the respective Vitotronic 100.
86	Control mode.	Maintenance or fault on Vitotronic 100 of boiler 3	Check maintenance display or fault code on the respective Vitotronic 100.
87	Control mode.	Maintenance or fault on Vitotronic 100 of boiler 4	Check maintenance display or fault code on the respective Vitotronic 100.
8C	Control mode.	Communication fault, Vitotronic 100 of boiler 1	Check and replace cascade communication module and connecting cable if required.
8d	Control mode.	Communication fault, Vitotronic 100 of boiler 2	Check and replace cascade communication module and connecting cable if required.

Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
8E	Control mode.	Communication fault, Vitotronic 100 of boiler 3	Check and replace cascade communication module and connecting cable if required.
8F	Control mode.	Communication fault, Vitotronic 100 of boiler 4	Check and replace cascade communication module and connecting cable if required.
90	Control mode.	Short circuit, temperature sensor [7], connection at solar control module.	Check temperature sensor [7] (see separate installation and service instructions).
91	Control mode.	Short circuit, temperature sensor [10], connection at solar control module.	Check temperature sensor [10] (see separate installation and service instructions).
92	No solar DHW heating.	Short circuit, collector temperature sensor, connection of temperature sensor [6] at solar control module or sensor at S1 of the Vitosolic.	Check sensor at the solar control unit (see separate installation and service instructions).
93	Control mode.	Short circuit, temperature sensor, connection to S3 of the Vitosolic.	Check sensor at the solar control unit (see separate installation and service instructions).
94	No solar DHW heating.	Short circuit, cylinder temperature sensor, connection of temperature sensor [5] at solar control module or sensor at S2 of the Vitosolic.	Check sensor at the solar control unit (see separate installation and service instructions).

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Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
98	Control mode.	Lead break, temperature sensor [7], connection at solar control module.	Check temperature sensor [7] (see separate installation and service instructions). Check coding address "20" in the **"Solar"** group.
99	Control mode.	Lead break, temperature sensor [10], connection at solar control module.	Check temperature sensor [10] (see separate installation and service instructions). Check coding address "20" in the **"Solar"** group.
9A	No solar DHW heating.	Lead break, collector temperature sensor, connection of temperature sensor [6] at solar control module or sensor at S1 of the Vitosolic.	Check sensor at the solar control unit (see separate installation and service instructions).
9b	Control mode.	Lead break, temperature sensor, connection to S3 of the Vitosolic.	Check sensor at the solar control unit (see separate installation and service instructions).
9C	No solar DHW heating.	Lead break, cylinder temperature sensor, connection of temperature sensor [5] at solar control module or sensor at S2 of the Vitosolic.	Check sensor at the solar control unit (see separate installation and service instructions).

Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
9E	Control mode.	No flow rate in solar circuit or flow rate too low, or temperature limiter has responded.	Check solar circuit. Acknowledge fault message (see separate installation and service instructions).
9F	Control mode.	Solar control module or Vitosolic fault. Displayed if a fault occurs at these devices and has no fault code in the Vitotronic.	Check solar control unit (see separate installation and service instructions).
Ab	Control mode, DHW cylinder may be cold.	Primary store system configuration fault: Code "55:3" has been selected in the **"DHW"** group, but plug 17B is not plugged in and/or codes "4C:1" and "4E:2" in the **"General"** group have not been set.	Insert plug 17B and check codes.
b1	Control mode.	Communication fault, programming unit	Check connections, and replace the programming unit if required.
b5	Control mode.	Internal fault	Check PCB is plugged in correctly.

Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
b6	Constant mode.	Invalid hardware recognised	Check coding address "92" in **"General"** group; "92:187" must be selected. ***Note*** *Code "8A:176" must be selected for coding address "92" to be displayed.*
bA	Mixer "Closed".	Communication fault, PCB extension for heating circuits 2 and 3 with mixer	Check that the PCB and ribbon cable are plugged in correctly, and replace PCB if required.
bC	Control mode without remote control.	Communication fault, Vitotrol remote control unit, heating circuit without mixer A1 (heating circuit 1)	Check connections, lead (see separate installation and service instructions) and coding address "A0" in the **"Heating circuit..."** group. With wireless remote control: Place the remote control near the wireless base station and check connection.
bd	Control mode without remote control.	Communication fault, remote control Vitotrol, heating circuit with mixer M2 (heating circuit 2)	Check connections, lead (see separate installation and service instructions) and coding address "A0" in the **"Heating circuit..."** group. With wireless remote control: Place the remote control near the wireless base station and check connection.

Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
bE	Control mode without remote control.	Communication fault, Vitotrol remote control with mixer M3 (heating circuit 3)	Check connections, lead (see separate installation and service instructions) and coding address "A0" in the **"Heating circuit..."** group. With wireless remote control: Place the remote control near the wireless base station and check connection.
bF	Control mode. No communication via LON.	Incorrect LON communication module	Replace LON communication module.
C2	Control mode.	Lead break, KM BUS to solar control module or Vitosolic	Check KM BUS cable and device. Without solar control unit: Set code "54:0" in the **"General"** group.
CF	Control mode. No communication via LON.	Communication fault, control unit LON communication module	Check LON communication module and replace if required. If no LON communication module is installed, set code "76:0" in the **"General"** group.
d3	Control mode.	Communication fault, extension EA1	Check connections (see page 137). Without extension EA1: Set code "5b:0" in the **"General"** group.
d5	Boiler ramps to the electronic maximum boiler water temperature limit.	Boiler does not log in at the cascade control unit	Check communication via subscriber check, leads/ cables to the Vitotronic 100 and codes.
d6	Control mode.	Input DE1 at extension EA1 reports a fault	Remove fault at appliance concerned.

Fault codes (cont.)

Displayed fault code	System characteristics	Cause	Measures
d7	Control mode.	Input DE2 at extension EA1 reports a fault	Remove fault at appliance concerned.
d8	Control mode.	Input DE3 at extension EA1 reports a fault	Remove fault at appliance concerned.
dA	Control mode without room influence.	Short circuit, room temperature sensor, heating circuit without mixer A1 (heating circuit 1)	Check room temperature sensor (see page 129).
db	Control mode without room influence.	Short circuit, room temperature sensor, heating circuit with mixer M2 (heating circuit 2)	Check room temperature sensor (see page 129).
dC	Control mode without room influence.	Short circuit, room temperature sensor, heating circuit with mixer M3 (heating circuit 3)	Check room temperature sensor (see page 129).
dd	Control mode without room influence.	Lead break, room temperature sensor, heating circuit without mixer A1 (heating circuit 1)	Check room temperature sensor (see page 129) and remote control setting (see separate installation and service instructions).
dE	Control mode without room influence.	Lead break, room temperature sensor, heating circuit with mixer M2 (heating circuit 2)	Check room temperature sensor (see page 129) and remote control setting (see separate installation and service instructions).
dF	Control mode without room influence.	Lead break, room temperature sensor, heating circuit with mixer M3 (heating circuit 3)	Check room temperature sensor (see page 129) and remote control setting (see separate installation and service instructions).

Note

In case of subscriber faults, ***"Subscriber fault"*** *... is displayed.*

Boiler water temperature control of the Vitotronic 100

Brief description

- The boiler water temperature is regulated by switching the modulating burner.
- The set boiler water temperature is defaulted by the Vitotronic 300-K.

Functions

The boiler water temperature is recorded separately:
- Temperature limiter
- Boiler water temperature sensor

Upper control range limits

Electronic maximum boiler water temperature limit:
- Setting range: 20 °C to boiler coding card default
- Changed via coding address "06" in group 2

Control sequence

The boiler goes cold:
- The burner start signal is selected as the set boiler water temperature –4 K, and the burner starts its own monitoring program.
- You can delay the burner start by several minutes.

Boiler heats up:
- The burner shutdown point is determined by the shutdown differential of 8 K.

Cascade control of the Vitotronic 300-K

Brief description

- The flow temperature is regulated by starting or stopping the burner or by modulating the individual burners.
- The boilers will be regulated to the set boiler water temperature defaulted by the cascade control unit (standalone control).
- Subject to the system design, you may select between one condensing strategy and two conventional boiler strategies.

Cascade control of the Vitotronic 300-K (cont.)

- The boiler sequence (see page 35) can be determined via code 2 and the boiler sequence selection control.
- **Coding addresses** that influence the cascade control:

  "Cascade" group.
  For a description, see codes overview.

Set flow temperature

The set flow temperature is determined from the following parameters:
- Set flow temperature of the heating circuit without mixer A1 and the heating circuits with mixer M2 and M3 (if installed)
- Set flow temperature of additional consumers (e.g. specified by Vitotronic 200-H)
- Set DHW temperature
- External demands (e.g. the set flow temperature specified by coding address "9b" or via set flow temperature specified by input "0 to 10 V" of the extension EA1)

Upper control range limits
- Maximum limit of the system flow temperature (coding address "37" in the **"Cascade"** group).

Lower control range limits
- Minimum limit of the system flow temperature (coding address "36" in the **"Cascade"** group).

Cascade control of the Vitotronic 300-K (cont.)

Standalone control

Boilers connected in parallel

- Without and with flow temperature sensor.
  - **With flow temperature sensor:**
    Set code "3b:1" in the **"Cascade"** group.
    The control deviation is calculated from the set flow temperature and the actual flow temperature to determine the start and shutdown criteria.
  - **Without flow temperature sensor:**
    Set code "3b:0" in the **"Cascade"** group.
    To determine the start and stop criteria, the control deviation is calculated from the set boiler water temperature and the estimated average actual boiler water temperature of the currently active boilers.
- The cascade control specifies the set boiler water temperature for all currently active boilers. Every boiler control unit regulates to the specified set value.

The following control strategies are available:
- Condensing strategy (see page 64)
- Conventional boiler strategy 1 (see page 64)
- Conventional boiler strategy 2 (see page 65)

Operation with positive pressure flue gas cascade

Code "7E:1" in the **"General"** group.
When each additional boiler starts, all currently active burners are briefly ramped up to over 80 %.

Control strategies

Condensing strategy

Benefit:
Optimum utilisation of the condensing effect and long burner runtimes.
Set code "3C:0" in the **"Cascade"** group.
It is the aim of the condensing strategy to operate as many boilers as possible at the lowest output level.
- **Starting criterion:**
  Boilers are started via an output statement (code "3d:1" in the **"Cascade"** group).
  An additional boiler will start if the currently required output can also be achieved by the currently active boilers plus the next boiler in the boiler sequence (see page 35).
- **Shutdown criterion:**
  The boilers are shut down via a shutdown integral. The shutdown criterion is met when the shutdown integral exceeds a limit set via coding address "46" in the **"Cascade"** group and the boiler started last will be shut down.

Conventional strategy 1

Benefit:
As few boilers as possible are active.
Set code "3C:1" in the **"Cascade"** group.

Cascade control of the Vitotronic 300-K (cont.)

With this strategy, an additional boiler will only be started if the maximum output of all currently active burners is insufficient to achieve the set flow temperature. A boiler will be shut down when the remaining boilers can achieve the required output on their own.

- **Starting criterion:**
  The boilers are started via a starting integral. The next boiler in the boiler sequence will be started if the value set in coding address "45" in the **"Cascade"** group is exceeded (see page 35).
- **Shutdown criterion:**
  Boilers are shut down via an output statement (code "3d:1" in the **"Cascade"** group). A boiler is shut down when the currently required output can be achieved without the boiler that was started last.

Conventional strategy 2

Benefit:

Long burner runtimes.
Code "3C:2" in the **"Cascade"** group (delivered condition).
An additional boiler will only be started if the maximum output of all currently active burners is insufficient to achieve the set flow temperature.
A boiler will be shut down if the burners were returned to their minimum output because of a large negative control deviation and the output is still too high.

- **Starting criterion:**
  The boilers are started via a starting integral. The next boiler in the boiler sequence will be started if the value set in coding address "45" in the **"Cascade"** group is exceeded (see page 35).
- **Shutdown criterion:**
  The boilers are shut down via a shutdown integral. The shutdown criterion is met when the shutdown integral exceeds a limit set via coding address "46" in the **"Cascade"** group and the boiler started last will be shut down.

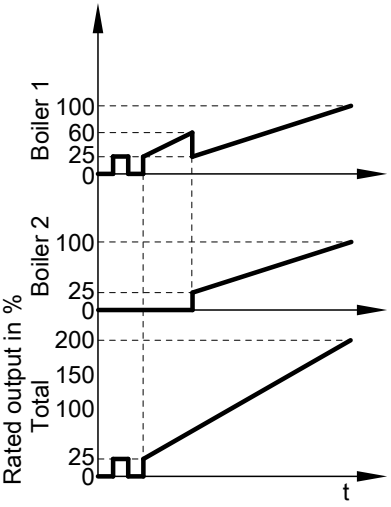
Cascade control of the Vitotronic 300-K (cont.)

Examples of the various control strategies

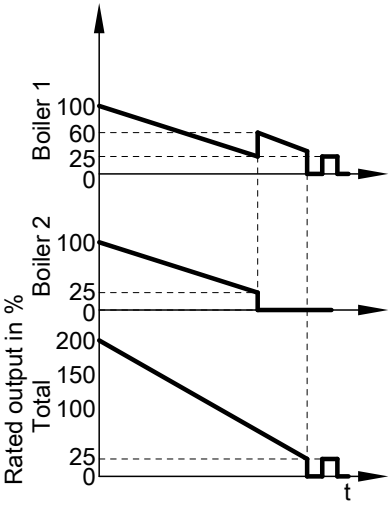
System with 2 Vitodens 200-W.

Condensing strategy (code "3C:0" in the "Cascade" group)

Starting



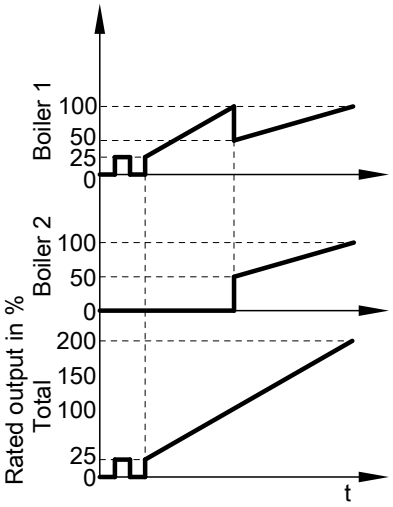
Shutdown



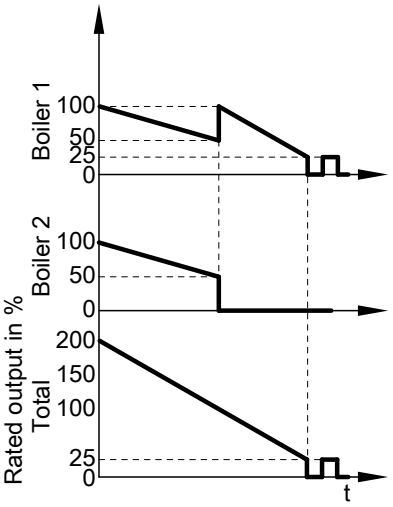
Cascade control of the Vitotronic 300-K (cont.)

Conventional boiler strategy 1 (code "3C:1" in the "Cascade" group)

Starting



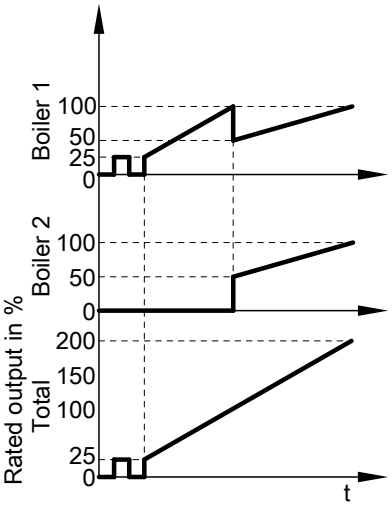
Shutdown



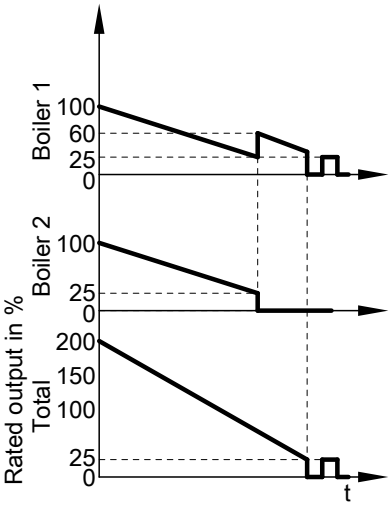
Cascade control of the Vitotronic 300-K (cont.)

Conventional boiler strategy 2 (code "3C:2" in the "Cascade" group)

Starting



Shutdown



Heating circuit control unit of the Vitotronic 300-K

Brief description

- The control unit has control circuits for one heating circuit without mixer A1 (heating circuit 1) and two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3).
- The set flow temperature of every heating circuit is determined from the following parameters:
  - Outside temperature
  - Set room temperature
  - Operating mode
  - Heating curve slope and level
- The flow temperature of the heating circuit without mixer corresponds to the common system flow temperature.
- The flow temperature of the heating circuits with mixer is regulated by the stepped opening or closing of the mixers.
  The mixer motor control changes the actuating and pause times subject to the control differential (control deviation).

Heating circuit control unit of the Vitotronic… (cont.)

Functions

The heating circuit without mixer is subject to the common flow temperature and its control range limits.
The heating circuit pump is the only actuator.
The flow temperature of the heating circuits with mixer is captured by the flow temperature sensor of the relevant heating circuit.

- Upper control limit:
  Electronic maximum flow temperature limit
  Coding address "C6" in the **"Heating circuit..."** group.
- Lower control range limit:
  Electronic minimum flow temperature limit
  Coding address "C5" in the **"Heating circuit..."** group.

Time program

In accordance with the time program in the **"Heating and DHW"** heating program, the control unit switches between "Central heating with standard room temperature" and "Central heating with reduced room temperature".
Every operating mode has its own set level.
4 time phases per day can be selected.

Outside temperature

A heating curve must be set up for matching the control unit to the building and the heating system.
The heating curve characteristics determine the set boiler water temperature subject to outside temperature. The control unit uses an average outside temperature. This comprises the actual and the adjusted outside temperature.

Room temperature

In conjunction with the remote control and room temperature hook-up (coding address "b0" in the **"Heating circuit..."** group):
Compared with the outside temperature, the room temperature has a greater influence on the set flow temperature (changed via coding address "b2" in the **"Heating circuit..."** group).
In conjunction with heating circuits with mixer:
For control differentials (actual value deviation) above 2 K room temperature, the influence can be increased again (coding address "b6" in the **"Heating circuit..."** group):

- Quick heat-up
  The set room temperature must be raised by at least 2 K by the following measures:
  – Activating party mode
  – Changeover from central heating with reduced temperature to central heating with standard temperature
  – Start optimisation (coding address "b7" in the **"Heating circuit..."** group)
  Quick heat-up will stop when the set room temperature has been reached.

Heating circuit control unit of the Vitotronic… (cont.)

- Quick setback
  The set room temperature must be reduced by at least 2 K by the following measures:
  – Activating economy mode
  – Changeover from central heating with standard temperature to central heating with reduced temperature
  – Stop optimisation (coding address "C1" in the **"Heating circuit..."** group)
  Quick setback ends when the set room temperature has been reached.

DHW temperature

Priority control

- With priority control: (code "A2:2" in the **"Heating circuit..."** group):
  During cylinder heating, the set flow temperature is set to 0 °C.
  The mixer closes and the heating circuit pump is switched off.
- Without priority control:
  The heating circuit control unit continues to operate with the same set value.

Heating circuit pump logic (economy mode)

The heating circuit pump is switched off (set flow temperature set to 0 °C) if the outside temperature exceeds the value selected via coding address "A5" in the **"Heating circuit..."** group.

Extended economy mode

The heating circuit pump is switched off (set flow temperature set to 0 °C) if one of the following criteria is met:

- The adjusted outside temperature exceeds the value selected via coding address "A6" in the **"Heating circuit..."** group.
- The heating circuit pump can be switched off for a time calculated by the control unit when changing over from heating mode to reduced mode.

  Requirement:
  – There is no risk of frost.
  – Coding address "b0" in the **"Heating circuit..."** group must be set to 0.

  The idle period can be individually adjusted via coding address "A9" in the **"Heating circuit..."** group.

  Note
  If, during the pump idle period, the system is switched over to heating mode or the set room temperature is increased, the heating circuit pump is switched on, even if the period has not yet expired.

- The actual room temperature exceeds the value selected via coding address "b5" in the **"Heating circuit..."** group.
- The mixer has been closed for 12 min. (mixer economy function, coding address "A7" in the **"Heating circuit..."** group).

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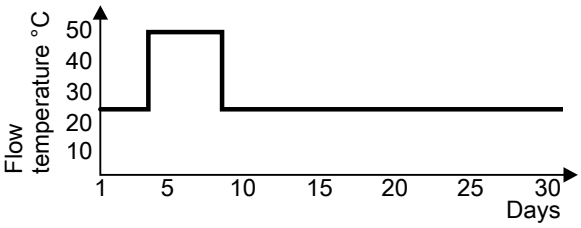
Heating circuit control unit of the Vitotronic… (cont.)

Screed drying function

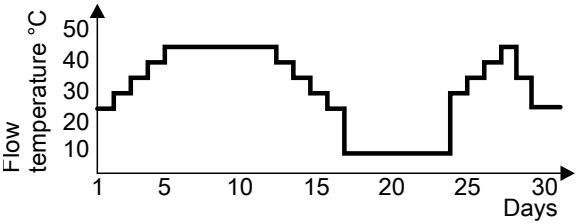
- In conjunction with a heating circuit with mixer.
- For drying screeds (observe the information provided by the screed manufacturer).
- The heating circuit pump of the heating circuit with mixer is switched on and the flow temperature is maintained in accordance with the selected profile.
- After completion (30 days), the mixer circuit will again be regulated automatically via the set parameters.
- Observe EN 1264.
- The report to be provided by the heating contractor must contain the following heat-up details:
  - Heat-up data with respective flow temperatures
  - Max. flow temperature achieved
  - Operating conditions and outside temperature during handover of the heating system
- The various temperature profiles are adjustable via coding address "F1" in the **"Heating circuit..."** group.
- The function continues after power failure or after the control unit has been switched off. The "**Heating and DHW**" heating program will be enabled if the screed drying function is terminated or if code **"F1:0"** is manually adjusted.

Temperature profile 1: (EN 1264-4) code "F1:1"

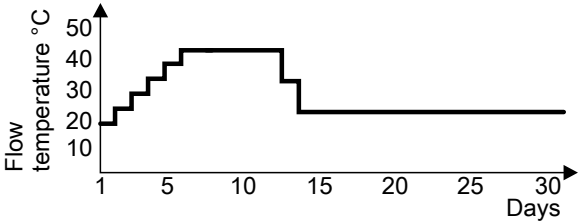


Heating circuit control unit of the Vitotronic… (cont.)

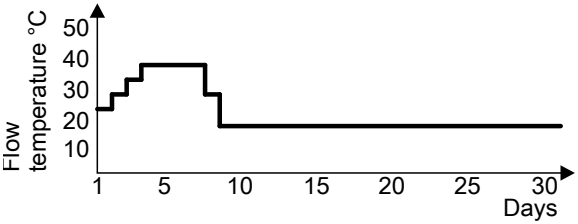
Temperature profile 2: (ZV parquet and flooring technology) code "F1:2"



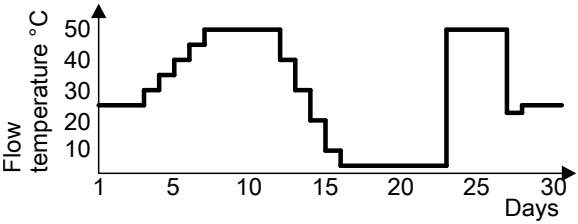
Temperature profile 3: Code "F1:3"



Temperature profile 4: Code "F1:4"

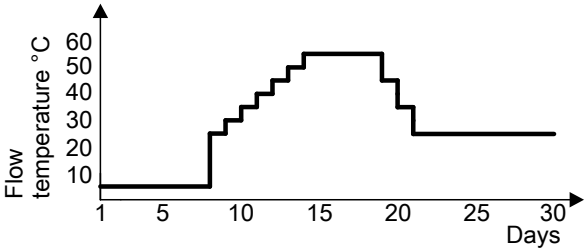


Temperature profile 5: Code "F1:5"

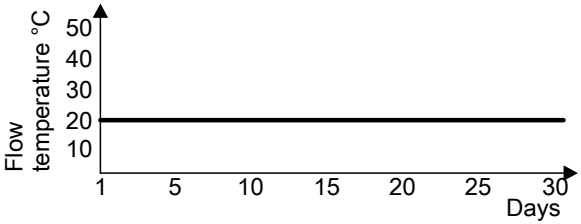


Heating circuit control unit of the Vitotronic… (cont.)

Temperature profile 6: Code "F1:6"



Temperature profile 7: Code "F1:15"



System dynamics

You can influence the control characteristics of the mixers via coding address "C4" in the **"Heating circuit..."** group.

Central control

Central control for a heating circuit can be programmed via coding address "7A" in the **"General"** group.
The heating and holiday program then applies to **all** additional heating circuits of the system.
For these heating circuits, when the heating and holiday program is enabled, **"Central control"** is displayed. Any holiday programs that may have been set will be deleted.

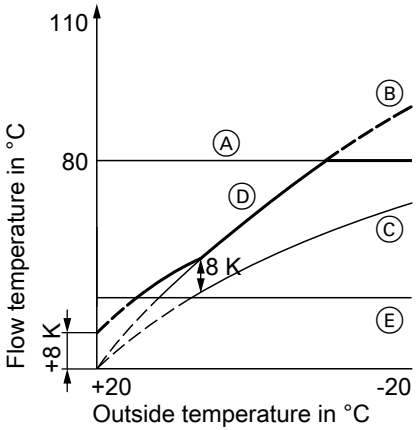
Party and economy modes cannot be enabled on **all** control units.

Frost protection

The flow temperature is maintained in accordance with the heating curve for the reduced set room temperature, but at min. 10 °C.
A variable frost limit can be set in accordance with coding address "A3" in the **"Heating circuit..."** group.

Heating circuit control unit of the Vitotronic… (cont.)

Flow temperature control



Ⓐ Maximum flow temperature limit (coding address "37" in the **"Cascade"** group)
Ⓑ Slope = 1.8 for heating circuit without mixer
Ⓒ Slope = 1.2 for heating circuit with mixer
Ⓓ Common flow temperature (at a differential temperature = 8 K)
Ⓔ Lower common flow temperature

Differential temperature:
The differential temperature is adjustable via coding address "9F" in the **"General"** group, delivered condition 8 K.
The differential temperature is the value by which the common flow temperature should be higher than the highest currently required flow temperature of the heating circuit with mixer.

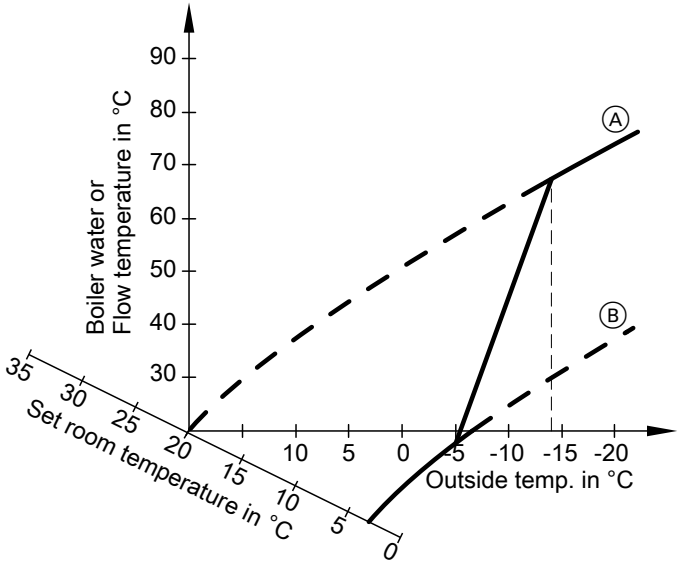
- System with only one heating circuit with mixer:
  The common set flow temperature is regulated automatically to 8 K above the set flow temperature of the heating circuit with mixer.
- System with heating circuit without mixer and heating circuits with mixer:
  The common set flow temperature operates in accordance with its own heating curve. The differential temperature of 8 K towards the set flow temperature of the heating circuits with mixer is set at the factory.

Raising the reduced room temperature

During operation with reduced room temperature, the reduced set room temperature can be automatically raised subject to the outside temperature. The temperature is raised in accordance with the selected heating curve, but no higher than the set standard room temperature.
The outside temperature limits for the start and end of the temperature raising can be adjusted via coding addresses "F8" and "F9".

Heating circuit control unit of the Vitotronic… (cont.)

Example using the settings in the delivered condition



Ⓐ Heating curve for operation with standard room temperature

Ⓑ Heating curve for operation with reduced room temperature

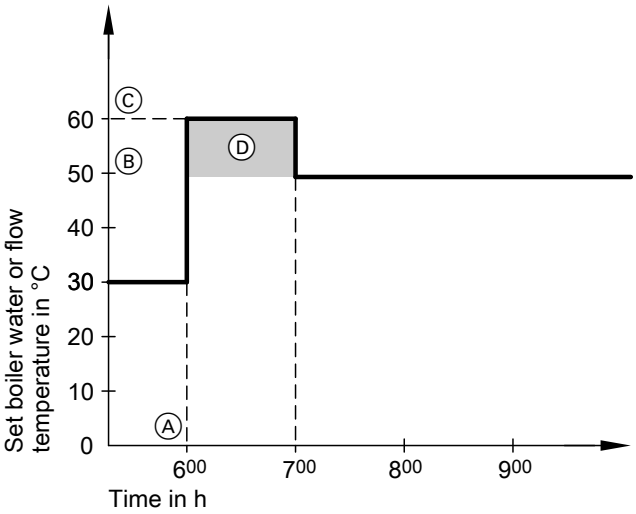
Reducing the heat-up time

During the transition from operation with reduced room temperature to operation with standard room temperature, the boiler water or flow temperature will be raised in accordance with the selected heating curve. The boiler water or flow temperature increase can be automatically raised.

The value and duration of the additional increase of the set boiler water temperature or flow temperature is adjusted in coding addresses "FA" and "Fb".

Heating circuit control unit of the Vitotronic… (cont.)

Example using the settings in the delivered condition



Ⓐ Start of operation with standard room temperature
Ⓑ Set boiler water or flow temperature in accordance with the selected heating curve
Ⓒ Set boiler water or flow temperature in accordance with the selected coding address "FA":
50 °C + 20 % = 60 °C
Ⓓ Duration of operation with raised set boiler water or flow temperature in accordance with coding address "Fb":
60 min

Control sequence

Mixer circuit

The mixer motor will not be controlled within the "neutral zone" (±1 K).

Flow temperature drops
(Set value −1 K)
The mixer motor receives the signal "Mixer open". The signal duration lengthens with an increasing control differential. The duration of pauses reduces with an increasing control differential.

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Heating circuit control unit of the Vitotronic… (cont.)

Flow temperature rises
(Set value +1 K)
The mixer motor receives the signal "Mixer closed". The signal duration lengthens with an increasing control differential. The duration of pauses reduces with an increasing control differential.

Cylinder temperature control

Brief description

- The cylinder temperature control is a constant temperature control function. It works by starting and stopping the circulation pump for cylinder heating. The switching differential is ±2.5 K.
- When the DHW cylinder is heated, a set flow temperature is specified that is 20 K higher than the set DHW temperature (adjustable via coding address "60" in the **"DHW"** group).

Functions

Time program

An automatic or an individual time program may be selected for DHW heating and the DHW circulation pump.
Compared with the heating circuit heat-up phase, DHW heating starts 30 min earlier in automatic mode.
The individual time program enables up to 4 time phases per day to be set for DHW heating and the DHW circulation pump for every day of the week.
All cylinder heating sequences will be completed independently of the time program.

In conjunction with coding address "7F" in the "General" group

- Detached house
  Code "7F:1":
  – Automatic mode
    The heating times for heating circuit 1 are applied to systems with two or three heating circuits.
  – Individual time program
    The time phases for DHW heating and the DHW circulation pump have the same effect on all heating circuits.

Cylinder temperature control (cont.)

- Apartment building
  Code "7F:0":
  – Automatic mode
    For systems with two or three heating circuits, the heating times for the relevant heating circuit will be applied.
  – Individual time program
    The time phases for DHW heating and the DHW circulation pump can be adjusted **individually for each heating circuit**.

Priority control

- With priority control: (code "A2:2" in the **"Heating circuit..."** group):
  During cylinder heating, the set flow temperature is set to 0 °C.
  The mixer closes and the heating circuit pump is switched off.
- Without priority control:
  The heating circuit control unit continues to operate with the same set value.

Frost protection

The DHW cylinder will be heated to 20 °C if the DHW temperature sinks below 5 ºC.

Auxiliary function for DHW heating

This function is activated by providing a second set DHW temperature via coding address "58" in group **"DHW"** and activating the fourth DHW phase for DHW heating.

Set DHW temperature

The set DHW temperature is adjustable between 10 and 60 ºC.
The set range can be extended up to 95 °C via coding address "56" in the **"DHW"** group.
The set default value of the programming unit and/or the Vitotrol 300A remote control units can be allocated via coding address "66" in the **"DHW"** group.

DHW circulation pump

This delivers hot water to the draw-off points at adjustable times.
Four time phases can be selected at the control unit for every day.

Auxiliary circuits

DHW heating in conjunction with the heating circuits can be blocked or enabled by changing over the heating program (see code "d5" in the **"Heating circuit..."** group).

System with primary store system

The above functions also apply in conjunction with primary store systems.
Set the following codes:
"55:3" in the **"DHW"** group, "4C:1", "4E:2" in the **"General"** group.

System with solar control unit

A third set DHW temperature can be specified via coding address "67" in the **"DHW"** group.
The DHW cylinder is only reheated by the boiler if the temperature falls below this value.

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Cylinder temperature control (cont.)

Control sequence

Code "55:0" in the "DHW" group, cylinder heating

The DHW cylinder goes cold (set value –2.5 K; adjustable via coding address "59"):
- The common set flow temperature is set 20 K higher than the set DHW temperature (change via coding address "60").

The DHW cylinder is hot (set value +2.5 K):
- The common set flow temperature is returned to the set weather-compensated value.
- Pump run-on:
  The circulation pump runs on after cylinder heating until one of the following criteria is met:
  – The weather-compensated set flow temperature has been reached.
  – The set DHW temperature is exceeded by 5 K.
  – The set max. run-on time is reached (coding address "62").
- Without pump run-on (code "62:0")

Code "55:1" in the "DHW" group, adaptive cylinder heating

With adaptive cylinder heating, the speed of the temperature rise during DHW heating is taken into account.

The DHW cylinder goes cold (set value –2.5 K; adjustable via coding address "59"):
- The common set flow temperature is set 20 K higher than the set DHW temperature (change via coding address "60").

The DHW cylinder is hot:
- The control unit checks whether the boiler will be required to supply heating energy after the cylinder has been heated up or whether residual boiler heat should be transferred to the DHW cylinder.
  Accordingly, the control unit determines the burner and circulation pump stop times to prevent the set DHW temperature being substantially exceeded after the cylinder has been heated up.

Code "55:2" in the "DHW" group, cylinder temperature control with 2 cylinder temperature sensors

Cylinder temperature sensor 1 enables the circulation pump for cylinder heating and is evaluated for stop conditions during the pump run-on time.
Cylinder temperature sensor 2:
Cylinder heating will start early if a lot of hot water is drawn off. Cylinder heating will terminate early if no hot water is drawn off.

Cylinder temperature control (cont.)

DHW cylinder goes cold:
- Set value –2.5 K, adjustable via coding address "59"
  or
- Actual DHW temperature at sensor 2 < set DHW temperature x factor for start time (adjustment via coding address "69")

The DHW cylinder is hot:
- Set value +2.5 K
  and
- Actual DHW temperature at sensor 2 > set DHW temperature x factor for stop time (adjustment via coding address "68")

Code "55:3" in the "DHW" group, cylinder temperature control, primary store system

The DHW cylinder goes cold (set value –2.5 K; adjustable via coding address "59"):
- The common set flow temperature is set 20 K higher than the set DHW temperature (change via coding address "60").
- The primary pump in the primary store system starts.
- The 3-way mixing valve opens and then regulates to the specified set value.
- The circulation pump for cylinder heating cycles (briefly switches on and off) until the set flow temperature has been reached (set DHW temperature + 5 K). Then it runs constantly.
  If, during heating, the actual value falls below the required set temperature, the circulation pump for cylinder heating will temporarily cycle again.

The DHW cylinder is hot:
- (Cylinder temperature sensor 1: Actual value ≥ set value
  and
  cylinder temperature sensor 2: Actual value > set value –1.5 K):
- The common set flow temperature is returned to the set weather-compensated value.
- The circulation pump for cylinder heating stops immediately when the 3-way mixing valve is fully opened.
  or
- The circulation pump for cylinder heating stops after expiry of the run-on time that is selected via code "62".

Calling up coding level 1

Codes for Vitotronic 100:

Boiler service instructions

Note

- *On Vitotronic 300 -K units, codes are displayed as plain text.*
- *Codes that have not been assigned due to the heating system equipment level or the setting of other codes are not displayed.*
- *Heating systems with one heating circuit without mixer and one or two heating circuits with mixer:*
  The heating circuit without mixer is designated ***"Heating circuit 1"*** *and the heating circuits with mixer as* ***"Heating circuit 2"*** *or* ***"Heating circuit 3"****.*
  If the heating circuits were given individual designations, the selected designation and ***"HC1"****,* ***"HC2"*** *or* ***"HC3"*** *appear instead.*

1. Press **OK** and ☰ simultaneously for approx. 4 s.

2. **"Coding level 1"**

3. Select group of required coding address:
   - **"General"**
   - **"Cascade"**
   - **"DHW"**
   - **"Solar"**
   - **"Heating circuit 1/2/3"**
   - **"All codes std device"**
     In this group, all coding addresses from coding level 1 (except the coding addresses from the **"Solar"** group) are displayed in ascending order.

4. Select coding address.

5. Select value according to the following tables and confirm with **OK**.

6. **If you want to reset all codes to their delivered condition:**
   Select **"Standard setting"** in **"Coding level 1"**.

   Note
   This also resets codes at coding level 2.

"General" group

Coding

Coding in the delivered condition		Possible change	
System design			
00:1	System version 1: One heating circuit without mixer A1 (heating circuit 1), without DHW heating	00:2 to 00:10	For system schemes, see the following table:

"General" group (cont.)

Value address 00: ...	Description
2	One heating circuit without mixer A1 (heating circuit 1), **with** DHW heating; automatic recognition.
3	One heating circuit with mixer M2 (heating circuit 2), **without** DHW heating.
4	One heating circuit with mixer (heating circuit 2), **with** DHW heating.
5	One heating circuit without mixer A1 (heating circuit 1), one heating circuit with mixer M2 (heating circuit 2), **without** DHW heating; automatic recognition.
6	One heating circuit without mixer A1 (heating circuit 1), one heating circuit with mixer M2 (heating circuit 2), **with** DHW heating; automatic recognition.
7	Two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3), **without** DHW heating.
8	Two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3), **with** DHW heating.
9	One heating circuit without mixer A1 (heating circuit 1), two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3), **without** DHW heating; automatic recognition.
10	One heating circuit without mixer A1 (heating circuit 1), two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3), **with** DHW heating; automatic recognition.

Coding in the delivered condition		Possible change	
Subscriber no.			
77:5	LON subscriber number.	77:2 to 77:99	LON subscriber number, adjustable from 1 to 99: 1 - 4 = Boiler 5 = Cascade 10 - 97 = Vitotronic 200-H 98 = Vitogate 99 = Vitocom
Detached house/apartment building			
7F:1	Detached house.	7F:0	Apartment building Separate adjustment of holiday program and time program for DHW heating possible.

"General" group (cont.)

Coding in the delivered condition		Possible change	
Lock out controls			
8F:0	Operation in the standard menu and extended menu enabled. ***Note*** *The respective code is only activated when you exit the service menu (see page 47).*	8F:1	Operation in the standard menu and extended menu blocked.
		8F:2	Operation enabled in the standard menu and blocked in the extended menu.
Set flow temperature for external demand			
9b:70	Set flow temperature for external demand 70 °C.	9b:0 to 9b:127	Set flow temperature for external demand adjustable from 0 to 127 °C (limited by boiler-specific parameters).

"Cascade" group

Coding

Coding in the delivered condition		Possible change	
Number of boilers in cascade			
35:4	4 boilers connected to the Vitotronic 300-K.	35:1 to 35:8	1 to 8 boilers connected to the Vitotronic 300-K.
Min. system flow temperature			
36:0	Electronic minimum system flow temperature limit set to 0 °C.	36:1 to 36:127	Minimum limit adjustable from 0 to 127 °C.

"Cascade" group (cont.)

Coding in the delivered condition		Possible change	
Max. system flow temperature			
37:80	Electronic maximum system flow temperature limit set to 80 °C. ***Note*** *Value must not be higher than the lowest value of coding address "06" in group 1 of every Vitotronic 100.*	37:20 to 37:127	Maximum limit adjustable from 20 to 127 °C.
Control type			
3b:1	Standalone parallel boiler connection with flow temperature sensor.	3b:0	Standalone parallel boiler connection without flow temperature sensor.
Control strategy			
3C:0	Condensing strategy (see page 64).	3C:1	Conventional boiler strategy 1 (see page 64).
		3C:2	Conventional boiler strategy 2 (see page 65).

"DHW" group

Coding

Coding in the delivered condition		Possible change	
Set DHW temperature reheating suppression			
67:40	For solar DHW heating: Set DHW temperature 40 °C. Reheating is suppressed above the selected set temperature (DHW heating blocked by the boiler).	67:0 to 67:95	Set DHW temperature adjustable from 0 to 95 °C (limited by boiler-specific parameters).

"DHW" group (cont.)

Coding in the delivered condition		Possible change	
Enable DHW circulation pump			
73:0	DHW circulation pump: "ON" according to time program.	73:1 to 73:6	"ON" from once per hour for 5 min up to 6 times per hour for 5 min during the time program.
		73:7	Constantly "ON".

"Solar" group

Note
The solar group is only displayed if a solar control module, type SM1, is connected.

Coding

Coding in the delivered condition		Possible change	
Speed control solar circuit pump			
02:0	Solar circuit pump (multi stage) without speed control by solar control module SM1.	02:1	Solar circuit pump (multi stage) is speed-controlled with wave pack control.
		02:2	Solar circuit pump is speed-controlled with PWM control.
Cylinder maximum temperature			
08:60	The solar circuit pump stops when the actual DHW temperature reaches the maximum cylinder temperature (60 °C).	08:10 to 08:90	The maximum cylinder temperature is adjustable from 10 to 90 °C.
Stagnation time reduction			
0A:5	To protect system components and heat transfer medium: the speed of the solar circuit pump is reduced if the actual DHW temperature is 5 K below the maximum cylinder temperature.	0A:0	Stagnation time reduction is disabled.
		0A:1 to 0A:40	Value for stagnation time reduction is adjustable from 1 to 40 K.

"Solar" group (cont.)

Coding in the delivered condition		Possible change	
Flow rate solar circuit			
0F:70	The solar circuit flow rate at maximum pump speed is 7 l/min.	0F:1 to 0F:255	Flow rate adjustable from 0.1 to 25.5 l/min; 1 step ≙ 0.1 l/min.
Extended solar control functions			
20:0	No extended control functions enabled.	20:1	Additional function for DHW heating.
		20:2	Differential temperature control 2.
		20:3	Differential temperature control 2 and auxiliary function.
		20:4	Differential temperature control 2 for central heating backup.
		20:5	Thermostat function.
		20:6	Thermostat function and auxiliary function.
		20:7	Solar heating via external heat exchanger without additional temperature sensor.
		20:8	Solar heating via external heat exchanger with additional temperature sensor.
		20:9	Solar heating of two DHW cylinders.

"Heating circuit 1", "Heating circuit 2", "Heating circuit 3" group

Coding

Coding in the delivered condition		Possible change	
Priority DHW heating			
A2:2	Cylinder priority applicable to heating circuit pump and mixer.	A2:0	Without cylinder priority applicable to heating circuit pump and mixer.
		A2:1	Cylinder priority applies only to mixers.
		A2:3 to A2:15	No function.
Economy function outside temperature			
A5:5	With heating circuit pump logic function (economy mode): Heating circuit pump "OFF" when the outside temperature (AT) is 1 K higher than the set room temperature (RT_{set}) $AT > RT_{set} + 1\ K$	A5:0	Without heating circuit pump logic function.
		A5:1 to A5:15	With heating circuit pump logic function: Heating circuit pump "OFF"; see the following table.

Parameter address A5:...	With heating circuit pump logic function: Heating circuit pump "OFF"
1	$AT > RT_{set} + 5\ K$
2	$AT > RT_{set} + 4\ K$
3	$AT > RT_{set} + 3\ K$
4	$AT > RT_{set} + 2\ K$
5	$AT > RT_{set} + 1\ K$
6	$AT > RT_{set}$
7 to 15	$AT > RT_{set} - 1\ K$ $AT > RT_{set} - 9\ K$

"Heating circuit 1", "Heating circuit 2", "Heating circuit 3" group (cont.)

Coding in the delivered condition		Possible change	
Extended economy function mixer			
A7:0	Without economy function mixer.	A7:1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": ■ If the mixer has been attempting to close for longer than 20 min. Heating circuit pump "ON": ■ If the mixer changes to control function. ■ If there is a risk of frost.
Pump idle time, transition reduced mode			
A9:7	With pump idle time: Heating circuit pump "OFF" (see function description on page 70).	A9:0	Without pump idle time.
		A9:1 to A9:15	With pump idle time; adjustable from 1 to 15: 1: short idle time 15: long idle time Max. idle time 10 h.
Weather-compensated/room temperature hook-up			
b0:0	With remote control:*1 Heating mode/reduced mode: weather-compensated.	b0:1	Heating mode: weather-compensated Reduced mode: with room temperature hook-up
		b0:2	Heating mode: with room temperature hook-up Reduced mode: weather-compensated
		b0:3	Heating mode/reduced mode: with room temperature hook-up
Economy function room temperature			
b5:0	With remote control:*1 No room temperature-dependent heating circuit pump logic function.	b5:1 to b5:8	Heating circuit pump logic function, see the following table.

*1 *Change code only for the heating circuits with mixer.*

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"Heating circuit 1", "Heating circuit 2", "Heating circuit 3" group (cont.)

Parameter address b5:...	With heating circuit pump logic function: Heating circuit pump "OFF"	Heating circuit pump "ON"
1	$RT_{actual} > RT_{set} + 5$ K	$RT_{actual} < RT_{set} + 4$ K
2	$RT_{actual} > RT_{set} + 4$ K	$RT_{actual} < RT_{set} + 3$ K
3	$RT_{actual} > RT_{set} + 3$ K	$RT_{actual} < RT_{set} + 2$ K
4	$RT_{actual} > RT_{set} + 2$ K	$RT_{actual} < RT_{set} + 1$ K
5	$RT_{actual} > RT_{set} + 1$ K	$RT_{actual} < RT_{set}$
6	$RT_{actual} > RT_{set}$	$RT_{actual} < RT_{set} - 1$ K
7	$RT_{actual} > RT_{set} - 1$ K	$RT_{actual} < RT_{set} - 2$ K
8	$RT_{actual} > RT_{set} - 2$ K	$RT_{actual} < RT_{set} - 3$ K

Coding in the delivered condition		Possible change	
Min. flow temperature heating circuit			
C5:20	Electronic minimum flow temperature limit 20 °C (only in operation with standard room temperature).	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C (limited by boiler-specific parameters).
Max. flow temperature heating circuit			
C6:75	Electronic maximum flow temperature limit set to 75 °C.	C6:10 to C6:127	Maximum limit adjustable from 10 to 127 °C (limited by boiler-specific parameters).
Heating program - changeover			
d5:0	With external heating program changeover (observe setting of coding address "5d", "5E" and "5F" and "91" in the **"General"** group): The heating program changes to "Constant room heating with reduced room temperature" or "Standby mode" (subject to the setting of the set reduced room temperature).	d5:1	The heating program changes to "Constant operation with standard room temperature".

"Heating circuit 1", "Heating circuit 2", "Heating circuit 3" group (cont.)

Coding in the delivered condition		Possible change	
Ext. heating program changeover to heating circuit			
d8:0	No heating program changeover via extension EA1.	d8:1	Heating program changeover via input DE1 at extension EA1.
		d8:2	Heating program changeover via input DE2 at extension EA1.
		d8:3	Heating program changeover via input DE3 at extension EA1.
Screed function			
F1:0	Screed function disabled.	F1:1 to F1:6	Only for heating circuits with mixer: Screed function adjustable in accordance with 6 optional temperature/time profiles (see page 71).
		F1:15	Constant flow temperature 20 °C (see page 71).
Party mode time limit			
F2:8	Time limit for party mode or external heating program changeover via pushbutton: 8 h *2 ***Note*** *Observe settings of coding addresses "5d", "5E", "5F" in the* ***"General"*** *group, as well as "d5" and "d8" in the* ***"Heating circuit..."*** *group).*	F2:0	No time limit for party mode.*2
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h.*2

*2 *Party mode ends* ***automatically*** *in the "Heating and DHW" program, when the system changes over to operation with standard room temperature.*

"Heating circuit 1", "Heating circuit 2", "Heating circuit 3" group (cont.)

Coding in the delivered condition		Possible change	
Start temperature raising			
F8:-5	Temperature limit for terminating the reduced mode -5 ºC, see example on page 74. Observe settings of coding address "A3" set in the **"Heating circuit ..."** group.	F8:+10 to F8:-60	Temperature limit adjustable from +10 to -60 °C.
		F8:-61	Function disabled.
End temperature raising			
F9:-14	Limit for raising the reduced set room temperature -14 ºC, see example on page 74.	F9:+10 to F9:-60	Limit for raising the set room temperature to the value selected for standard mode adjustable from +10 to -60 °C.
Set flow temperature increase			
FA:20	Raising the set boiler water temperature or the set flow temperature when changing from operation with reduced room temperature to operation with standard room temperature, by 20 %. See example on page 75.	FA:0 to FA:50	Temperature rise adjustable from 0 to 50 %.
Duration set flow temperature increase			
Fb:30	Duration for raising the set boiler water temperature or the set flow temperature (see coding address "FA" in the **"Heating circuit ..."** group) 60 min. See example on page 75.	Fb:0 to Fb:150	Duration adjustable from 0 to 300 min; 1 step ≙ 2 min.

Calling up coding level 2

Codes for Vitotronic 100:

Boiler service instructions

Note
- *At coding level 2, all codes are accessible, including the codes at coding level 1.*
- *Codes that have not been assigned due to the heating system equipment level or the setting of other codes are not displayed.*
- *Heating systems with one heating circuit without mixer and one or two heating circuits with mixer:*
  The heating circuit without mixer is designated ***"Heating circuit 1"*** *and the heating circuits with mixer as* ***"Heating circuit 2"*** *or* ***"Heating circuit 3"****.*
  If the heating circuits were given individual designations, the selected designation and ***"HC1"****,* ***"HC2"*** *or* ***"HC3"*** *appear instead.*

1. Press **OK** and ☰ simultaneously for approx. 4 s.
2. Press **OK** and ↩ simultaneously for approx. 4 s.
3. **"Coding level 2"**
4. Select group of required coding address:
   - **"General"**
   - **"Cascade"**
   - **"DHW"**
   - **"Solar"**
   - **"Heating circuit 1/2/3"**
   - **"All codes std device"**
     In this group, all coding addresses (except the coding addresses from the **"Solar"** group) are displayed in ascending order.
5. Select coding address.
6. Select value according to the following tables and confirm with **"OK"**.
7. **If you want to reset all codes to their delivered condition:**
   Select **"Standard setting"** in **"Coding level 2"**.

   Note
   This also resets codes at coding level 1.

"General" group

Coding

Coding in the delivered condition		Possible change	
00:1	System version 1:	00:2 to 00:10	For system schemes, see the following table:

"General" group (cont.)

Coding in the delivered condition		Possible change	
	One heating circuit without mixer A1 (heating circuit 1), **without** DHW heating		

Value address 00: ...	Description
2	One heating circuit without mixer A1 (heating circuit 1), **with** DHW heating (automatic recognition).
3	One heating circuit with mixer M2 (heating circuit 2), **without** DHW heating.
4	One heating circuit with mixer (heating circuit 2), **with** DHW heating.
5	One heating circuit without mixer A1 (heating circuit 1), one heating circuit with mixer M2 (heating circuit 2), **without** DHW heating; automatic recognition.
6	One heating circuit without mixer A1 (heating circuit 1), one heating circuit with mixer M2 (heating circuit 2), **with** DHW heating; automatic recognition.
7	Two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3), **without** DHW heating.
8	Two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3), **with** DHW heating.
9	One heating circuit without mixer A1 (heating circuit 1), two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3), **without** DHW heating; automatic recognition.
10	One heating circuit without mixer A1 (heating circuit 1), two heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3), **with** DHW heating; automatic recognition.

Coding in the delivered condition		Possible change	
12:5	With extension EA1: DHW circulation pump runtime for brief operation: 5 min.	12:1 to 12:60	Runtime adjustable from 1 to 60 min.
1E:0	With extension EA1 (analogue input 0-10 V): Temperature demand from 0 to 100 °C: 1 V ≙ 10 °C 10 V ≙ 100 °C	1E:1	Temperature demand from 30 to 120 °C: 1 V ≙ 30 °C 10 V ≙ 120 °C

"General" group (cont.)

Coding in the delivered condition		Possible change	
2E:0	Without outside temperature sensor RF.	2E:1	With outside temperature sensor; automatic recognition.
		2E:2	Outside temperature sensor RF is not used.
2F:0	Never adjust.		
4A:0	Never adjust.		
4b:0	Sensor 17B not fitted.	4b:1	Sensor 17B installed (e.g. temperature sensor T2); automatic recognition.
4C:0	Connection on plug 20A1: Heating circuit pump.	4C:1	Primary pump, primary store system.
4F:5	Distribution pump run-on time 5 min.	4F:0	No pump run-on.
		4F:1 to 4F:60	Run-on time adjustable from 1 to 60 min.
50:10	Start integral threshold for external heat source set to 10 K x min.	50:1 to 50:255	Start integral threshold for external heat source adjustable from 1 to 255 K x min.
51:255	Shutdown integral threshold for external heat source set to 255 K x min.	51:1 to 51:255	Shutdown integral threshold for external heat source adjustable from 1 to 255 K x min.
54:0	Without solar thermal system.	54:1	With Vitosolic 100; automatic recognition.
		54:2	With Vitosolic 200; automatic recognition.
		54:3	With solar control module SM1 without auxiliary function; automatic recognition.
		54:4	With solar control module, type SM1, with auxiliary function, e.g. central heating backup; automatic recognition.
5b:0	Without extension EA1.	5b:1	With extension EA1; automatic recognition.

"General" group (cont.)

Coding in the delivered condition		Possible change	
5C:0	Function, output 157 at extension EA1: Central fault message.	5C:1	Feed pump.
		5C:2	No function.
		5C:3	Heating circuit pump A1 is switched to low speed (reduced mode).
		5C:4	Heating circuit pump M2 is switched to low speed (reduced mode).
		5C:5	Heating circuit pump M3 is switched to low speed (reduced mode).
5d:0	Function input DE1 at extension EA1: No function.	5d:1	Heating program changeover.
		5d:2	External demand with minimum set flow temperature. Selection of set value in coding address "9b" in the **"General"** group.
		5d:3	External blocking.
		5d:4	External blocking with fault message.
		5d:5	Fault message input.
		5d:6	Brief operation, DHW circulation pump (pushbutton function). Setting of runtime for DHW circulation pump in coding address "12" in the **"General"** group.
5E:0	Function input DE2 at extension EA1: No function.	5E:1	Heating program changeover.
		5E:2	External demand with minimum set flow temperature. Selection of set value in coding address "9b" in the **"General"** group
		5E:3	External blocking.
		5E:4	External blocking with fault message.

"General" group (cont.)

Coding in the delivered condition		Possible change	
		5E:5	Fault message input.
		5E:6	Brief operation, DHW circulation pump (pushbutton function). Setting of runtime for DHW circulation pump in coding address "12" in the **"General"** group.
5F:0	Function input DE3 at extension EA1: No function.	5F:1	Heating program changeover.
		5F:2	External demand with minimum set flow temperature. Selection of set value in coding address "9b" in the **"General"** group.
		5F:3	External blocking.
		5F:4	External blocking with fault message.
		5F:5	Fault message input.
		5F:6	Brief operation, DHW circulation pump (pushbutton function). Setting of runtime for DHW circulation pump in coding address "12" in the **"General"** group.
6E:50	No display correction of the outside temperature.	6E:0 to 6E:49	Display correction –5 K to Display correction –01 K
		6E:51 to 6E:99	Display correction +0.1 K to Display correction +4.9 K
76:0	Without communication module.	76:1	With LON communication module; automatic recognition. If no LON communication module is installed, set code "76:0" in the **"General"** group.

"General" group (cont.)

Coding in the delivered condition		Possible change	
77:5	LON subscriber number.	77:2 to 77:99	LON subscriber number, adjustable from 1 to 99: 1 - 4 = Boiler 5 = Cascade 10 - 97 = Vitotronic 200-H 98: Vitogate 99 = Vitocom
78:1	LON communication enabled.	78:0	LON communication disabled.
79:1	With LON communication module: Control unit is fault manager.	79:0	Control unit is not fault manager.
7A:0	Without central control of heating circuits.	7A:1	With central control (see page 73) Heating circuit without mixer A1 (heating circuit 1).
		7A:2	Heating circuit with mixer M2 (heating circuit M2).
		7A:3	Heating circuit with mixer M3 (heating circuit M3).
7b:1	With LON communication module: Control unit transmits the time.	7b:0	No time transmission.
7F:1	Detached house.	7F:0	Apartment building. Separate adjustment of holiday program and time program for DHW heating possible.
80:6	A fault message is issued if a fault occurs for at least 30 s.	80:0	Immediate fault message.
		80:2 to 80:199	The minimum fault duration until a fault message is issued is adjustable from 10 to 995 s; 1 step ≙ 5 s.
81:1	Automatic summer/wintertime changeover.	81:0	Manual summer/wintertime changeover.
		81:2	The use of the radio clock receiver will be recognised automatically.

"General" group (cont.)

Coding in the delivered condition		Possible change	
		81:3	With LON communication module: The control unit receives the time.
82:3	Summer time starts: March.	82:1 to 82:12	January to December.
83:5	Summer time starts: Week 5 of the selected month.	83:1 to 83:5	Week 1 to week 5 of the selected month.
84:7	Summer time starts: Last Sunday of the selected month.	84:1 to 84:7	Monday to Sunday.
85:10	Wintertime starts: October.	85:1 to 85:12	January to December.
86:5	Wintertime starts: Week 5 of the selected month.	86:1 to 86:5	Week 1 to week 5 of the selected month.
87:7	Wintertime starts: Last Sunday of the selected month.	87:1 to 87:7	Monday to Sunday.
88:0	Temperature unit °C (Celsius).	88:1	Temperature unit °F (Fahrenheit).
89:...	Never adjust.		
8A:175	Never adjust.		
8F:0	Operation in the standard menu and extended menu enabled. ***Note*** *The respective code is only activated when you exit the service menu (see page 47).*	8F:1	Operation in standard menu **and** extended menu blocked.
		8F:2	Operation enabled in the standard menu and blocked in the extended menu.
90:128	Time constant for calculating adjusted outside temperature 21.3 h.	90:1 to 90:199	Fast (low values) or slow (high values) matching of the flow temperature, subject to the set value when the outside temperature changes;

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"General" group (cont.)

Coding in the delivered condition		Possible change	
			1 step ≙ 10 min.
91:0	Connection at terminals 1 and 2 in plug [143] disabled (external heating program changeover) (see page 26).	91:1	Contact affects the following heating circuits: Heating circuit without mixer A1 (heating circuit 1).
		91:2	Heating circuit with mixer M2 (heating circuit 2).
		91:3	Heating circuits without mixer A1 (heating circuit 1) and heating circuit with mixer M2 (heating circuit 2).
		91:4	Heating circuit with mixer M3 (heating circuit 3).
		91:5	Heating circuits without mixer A1 (heating circuit 1) and heating circuit with mixer M3 (heating circuit 3).
		91:6	Heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3).
		91:7	Heating circuit without mixer A1 (heating circuit 1) and heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3).
92:186	Never adjust. Will only be displayed if "8A:176" is programmed.		
96:0	Without PCB, extension for heating circuits 2 and 3.	96:1	With PCB, extension for heating circuits 2 and 3; automatic recognition.
97:2	With LON communication module: The control unit sends the outside temperature to the Vitotronic 200-H.	97:0	The outside temperature of the sensor connected to the control unit is only utilised internally.
		97:1	The control unit receives the outside temperature from the Vitotronic 200-H.

"General" group (cont.)

Coding in the delivered condition		Possible change	
98:1	Viessmann system number (in conjunction with monitoring several systems within one LON system with Vitocom 300).	98:1 to 98:5	System number adjustable from 1 to 5.
99:0	Connection at terminals 2 and 3 in plug [143] disabled (external blocking/ External "Mixer close") (see page 26).	99:1	No function.
		99:2	External "Mixer closed" Heating circuit with mixer M2 (heating circuit 2).
		99:3	No function.
		99:4	External "Mixer closed" Heating circuit with mixer M3 (heating circuit 3).
		99:5	No function.
		99:6	External "Mixer closed" Heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3).
		99:7	No function.
		99:8	External blocking.
		99:9	No function.
		99:10	External blocking/external "Mixer closed" Heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3).
		99:11	No function.
		99:12	External blocking/external "Mixer closed" Heating circuit with mixer M3 (heating circuit 3).
		99:13	No function.
		99:14	External blocking/external "Mixer closed" Heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3).
		99:15	No function.

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"General" group (cont.)

Coding in the delivered condition		Possible change	
9A:0	Connection at terminals 1 and 2 in plug [143] disabled (external "Mixer close") (see page 26).	9A:1	No function.
		9A:2	External "Mixer open" Heating circuit with mixer M2 (heating circuit 2).
		9A:3	No function.
		9A:4	External "Mixer open" Heating circuit with mixer M3 (heating circuit 3).
		9A:5	No function.
		9A:6	External "Mixer open" Heating circuits with mixer M2 (heating circuit 2) and M3 (heating circuit 3).
		9A:7	No function.
9b:70	Set flow temperature for external demand 70 °C.	9b:0 to 9b:127	Set value adjustable from 0 to 127 °C.
9C:20	With LON communication module: Monitoring LON subscribers. If there is no response from a subscriber after 20 min, the values specified inside the control unit are used. Only then will a fault message be issued.	9C:0	No monitoring.
		9C:5 to 9C:60	Time adjustable from 5 to 60 min.
9F:8	Differential temperature 8 K; only in conjunction with a heating circuit with mixer M2 (heating circuit 2) and M3 (heating circuit 3).	9F:0 to 9F:40	Differential temperature adjustable from 0 to 40 K.

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"Cascade" group

Coding

Coding in the delivered condition		Possible change	
35:4	4 boilers connected to the Vitotronic 300-K.	35:1 to 35:8	1 to 8 boilers connected to the Vitotronic 300-K.
36:0	Electronic minimum system flow temperature limit set to 0 °C.	36:1 to 36:127	Minimum limit adjustable from 0 to 127 °C.
37:80	Electronic maximum system flow temperature limit set to 80 °C.	37:20 to 37:127	Maximum limit adjustable from 20 to 127 °C. ***Note*** *Value must not be higher than the lowest value of coding address "06" in the* ***"Boiler"*** *group of every Vitotronic 100.*
38:0	No lead boiler or boiler sequence changeover; see function description in chapter "Cascade control".	38:1	Lead boiler changeover: Every first day of the month, the boiler with the shortest number of hours run by its burner becomes the lead boiler.
		38:2 to 38:200	Lead boiler changeover after 200 to 20,000 hours run; 1 step ≙ 100 hours run.
39:0	No permanent lead boiler.	39:1 to 39:8	Permanent lead boiler is boiler ...
3A:0	No permanent last boiler.	3A:1 to 3A:8	Permanent last boiler is boiler ...
3b:1	Standalone **parallel** boiler circuit: With flow temperature sensor (see page 64).	3b:0	Standalone **parallel** boiler circuit: Without flow temperature sensor (see page 64).
		3b:2	Standalone **serial** boiler circuit:

"Cascade" group (cont.)

Coding in the delivered condition		Possible change	
			Without flow temperature sensor (see page 64).
3C:0	Condensing strategy (see page 66).	3C:1	Conventional boiler strategy 1 (see page 67).
		3C:2	Conventional boiler strategy 2 (see page 68).
3d:1	Output statement for condensing strategy and conventional boiler strategy 1.	3d:0	No output statement. ***Note*** *Vitotronic 300-K regulates only according to conventional boiler strategy 2.*
3E:0	Distribution pump will only run if heat demand exists.	3E:1	Distribution pump always runs; shutdown through "External blocking" signal.
3F:0	Without cylinder priority control for distribution pump.	3F:1	With cylinder priority control for distribution pump.
41:31	No ECO threshold boiler 1.	41:–30 to 41:+30	ECO threshold boiler 1 adjustable from –30 to +30 °C.
42:31	No ECO threshold boiler 2.	42:–30 to 42:+30	ECO threshold boiler 2 adjustable from –30 to +30 °C.
43:31	No ECO threshold boiler 3.	43:–30 to 43:+30	ECO threshold boiler 3 adjustable from –30 to +30 °C.
44:31	No ECO threshold boiler 4.	44:–30 to 44:+30	ECO threshold boiler 4 adjustable from –30 to +30 °C.
45:60	Start integral threshold set to 60 K x min.	45:1 to 45:255	Start integral threshold adjustable from 1 to 255 K x min. ***Note*** *If the threshold is exceeded, one boiler or one burner stage is switched on.*

"Cascade" group (cont.)

Coding in the delivered condition		Possible change	
46:10	Shutdown integral threshold set to 10 K x min.	46:1 to 46:255	Shutdown integral threshold adjustable from 1 to 255 K x min. ***Note*** *If the threshold is exceeded, one boiler or one burner stage is switched off.*
47:15	Stop differential set to 15 K.	47:2 to 47:30	Stop differential adjustable from 2 to 30 K. ***Note*** *One boiler will be switched off if the actual flow temperature exceeds the set flow temperature by this value.*
48:35	Never adjust.		
49:40	Never adjust.		
65:31	No ECO threshold boiler 5.	65:–30 to 65:+30	ECO threshold boiler 5 adjustable from –30 to +30 °C.
6F:31	No ECO threshold boiler 6.	6F:–30 to 6F:+30	ECO threshold boiler 6 adjustable from –30 to +30 °C.
74:31	No ECO threshold boiler 7.	74:–30 to 74:+30	ECO threshold boiler 7 adjustable from –30 to +30 °C.
7d:31	No ECO threshold boiler 8.	7d:–30 to 7d:+30	ECO threshold boiler 8 adjustable from –30 to +30 °C.

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"DHW" group

Coding

Coding in the delivered condition		Possible change	
55:0	Cylinder heating, hysteresis ± 2.5 K.	55:1	Adaptive cylinder heating enabled (see page 79).
		55:2	Cylinder temperature control with 2 cylinder temperature sensors (see page 79).
		55:3	Cylinder temperature control, primary store system (see page 80).
56:0	Set DHW temperature adjustable from 10 to 60 °C.	56:1	Set DHW temperature adjustable from 10 to over 60 °C. ***Note*** *Observe the max. permissible DHW temperature.*
58:0	Without auxiliary function for DHW heating.	58:10 to 58:60	Input of a second set DHW temperature, adjustable from 10 to 95 °C (observe coding address "56").
59:0	Cylinder heating: Set start point –2.5 K Set stop point +2.5 K	59:1 to 59:10	Start point adjustable from 1 to 10 K below set value.
5A:0	For DHW heating: The set flow temperature is determined by the highest system flow temperature demand. Scan temperature in the **"Diagnosis"** menu, **"General"** (**"Common dem. temp"**), see page 47.	5A:1	For DHW heating: The set flow temperature is determined by the DHW cylinder flow temperature demand. Scan temperature in the **"Diagnosis"** menu, **"General"** (**"Common dem. temp"**), see page 47.
60:20	During DHW heating, the common flow temperature is max. 20 K higher than the set DHW temperature.	60:10 to 60:50	The differential between the common flow temperature and the set DHW temperature is adjustable from 10 to 50 K.

"DHW" group (cont.)

Coding in the delivered condition		Possible change	
62:10	Circulation pump with a run-on time of up to 10 min after cylinder heating.	62:0	Circulation pump without run-on.
		62:1 to 62:15	Run-on time adjustable from 1 to 15 min.
64:2	During party mode and after external changeover to constant operation with the standard room temperature: Enable constant DHW heating and DHW circulation pump "ON".	64:0	No DHW heating, DHW circulation pump "OFF".
		64:1	DHW heating and DHW circulation pump "ON" according to time program.
66:4	Input of the set DHW temperature: At the control unit programming unit and all installed Vitotrol 300A remote controls.	66:0	At the control unit programming unit.
		66:1	At the control unit programming unit and remote control heating circuit without mixer A1 (heating circuit).
		66:2	At the control unit programming unit and remote control heating circuit with mixer M2 (heating circuit 2).
		66:3	At the control unit programming unit and remote control heating circuit with mixer M3 (heating circuit 3).
		66:5	At the remote control heating circuit without mixer A1 (heating circuit 1).
		66:6	At the remote control heating circuit with mixer M2 (heating circuit 2).
		66:7	At the remote control heating circuit with mixer M3 (heating circuit 3).
67:40	For solar DHW heating:	67:0	No set value 3.

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"DHW" group (cont.)

Coding in the delivered condition		Possible change	
	Set DHW temperature 40 °C. Reheating is suppressed above the selected set temperature (DHW heating by the boiler only if solar energy is not sufficient).	67:10 to 67:95	Set DHW temperature adjustable from 10 to 95 °C (limited by boiler-specific parameters). Observe the setting of coding address "56".
68:8	With 2 cylinder temperature sensors (code "55:2"): Cylinder heating stop point at set value x 0.8.	68:2 to 68:10	Factor adjustable from 0.2 to 1; 1 step ≙ 0.1.
69:7	With 2 cylinder temperature sensors (code "55:2"): Cylinder heating start point at set value x 0.7.	69:1 to 69:9	Factor adjustable from 0.1 to 09; 1 step ≙ 0.1.
6A:75	Runtime, servomotor, mixing valve, heat exchanger set, Vitotrans 222, (80 and 120 kW): 75 s.	6A:10 to 6A:255	For heat exchanger set Vitotrans 222 (240 kW): set 113 s. Runtime adjustable from 10 to 255 s.
70:0	DHW circulation pump "ON" according to time program when DHW heating is enabled.	70:1	DHW circulation pump "ON" according to time program.
71:0	DHW circulation pump: "ON" according to time program.	71:1	"OFF" during DHW heating to set value 1.
		71:2	"ON" during DHW heating to set value 1.
72:0	DHW circulation pump: "ON" according to time program.	72:1	"OFF" during DHW heating to set value 2.
		72:2	"ON" during DHW heating to set value 2.
73:0	DHW circulation pump:	73:1 to 73:6	"ON" from once per hour for 5 min up to 6 times per hour for 5 min during the time program.
		73:7	Constantly "ON".

"DHW" group (cont.)

Coding in the delivered condition		Possible change	
	"ON" according to time program.		
75:0	DHW circulation pump "ON" during economy mode according to time program.	75:1	DHW circulation pump "OFF" during economy mode.

"Solar" group

Only in conjunction with solar control module, type SM1.

Coding

Coding in the delivered condition		Possible change	
00:8	The solar circuit pump starts when the collector temperature exceeds the actual DHW temperature by 8 K.	00:2 to 00:30	The differential between the actual DHW temperature and the start point for the solar circuit pump is adjustable from 2 to 30 K.
01:4	The solar circuit pump stops when the differential between the collector temperature and the actual DHW temperature is less than 4 K.	01:1 to 01:29	The differential between the actual DHW temperature and the stop point for the solar circuit pump is adjustable from 1 to 29 K.
02:0	Solar circuit pump (multi stage) without speed control by solar control module SM1.	02:1	Solar circuit pump (multi stage) is speed-controlled with wave packet control.
		02:2	Solar circuit pump is speed-controlled with PWM control.
03:10	The temperature differential between the collector temperature and actual DHW temperature is regulated to 10 K.	03:5 to 03:20	The differential temperature control between the collector temperature and actual DHW temperature is adjustable from 5 to 20 K.

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"Solar" group (cont.)

Coding in the delivered condition		Possible change	
04:4	Controller amplification of the speed control 4 %/K.	04:1 to 04:10	Controller amplification adjustable from 1 to 10 %/K.
05:10	Minimum speed of the solar circuit pump 10 % of the maximum speed.	05:2 to 05:100	Minimum speed of the solar circuit pump is adjustable from 2 to 100 %.
06:75	Maximum speed of the solar circuit pump 75 % of the maximum possible speed.	06:1 to 06:100	Maximum speed of the solar circuit pump is adjustable from 1 to 100 %.
07:0	Interval function of the solar circuit pump switched off.	07:1	Interval function of the solar circuit pump switched on. To capture the collector temperature more accurately, the solar circuit pump starts for short cycles.
08:60	The solar circuit pump stops when the actual DHW temperature reaches the maximum cylinder temperature (60 °C).	08:10 to 08:90	The maximum cylinder temperature can be adjusted from 10 to 90 °C.
09:130	The solar circuit pump stops if the collector temperature reaches 130 °C (maximum collector temperature to protect the system components).	09:20 to 09:200	The temperature can be adjusted from 20 to 200 °C.
0A:5	To protect system components and heat transfer medium: The speed of the solar circuit pump is reduced if the actual cylinder temperature is 5 K below the maximum cylinder temperature.	0A:0	Stagnation time reduction is disabled.
		0A:1 to 0A:40	Value for stagnation time reduction is adjustable from 1 to 40 K.

"Solar" group (cont.)

Coding in the delivered condition		Possible change	
0b:0	Frost protection function for solar circuit switched off.	0b:1	Frost protection function for solar circuit switched on (not required with Viessmann heat transfer medium).
0C:1	Delta T monitoring switched on. No flow rate captured in the solar circuit, or flow rate too low.	0C:0	Delta T monitoring switched off.
0d:1	Night circulation monitoring switched on. Unintentional flow rate is captured in the solar circuit (e.g. at night).	0d:0	Night circulation monitoring switched off.
0E:1	Calculation of solar yield with Viessmann heat transfer medium.	0E:2	Calculation of solar yield with water as heat transfer medium (never select, as operation is only possible with Viessmann heat transfer medium).
		0E:0	Calculation of solar yield switched off.
0F:70	The solar circuit flow rate at maximum pump speed is 7 l/min.	0F:1 to 0F:255	Flow rate adjustable from 0.1 to 25.5 l/min. 1 step ≙ 0.1 l/min
10:0	Target temperature control switched off (see coding address "11").	10:1	Target temperature control switched on.
11:50	Set solar DHW temperature 50 °C.	11:10 to 11:90	Set solar DHW temperature adjustable from 10 to 90 °C.

"Solar" group (cont.)

Coding in the delivered condition		Possible change	
	■ Target temperature control switched on (code "10:1"): Temperature at which the solar heated water in the DHW cylinder is to be stratified. ■ Extended control functions set to heat two DHW cylinders (code "20:8"): When one DHW cylinder reaches its set DHW temperature, the second DHW cylinder is heated.		
12:10	Minimum collector temperature 10 °C. The solar circuit pump will only start when the set minimum collector temperature is exceeded.	12:0	Minimum collector temperature function switched off.
		12:1 to 12:90	The minimum collector temperature can be adjusted from 1 to 90 °C.
20:0	No extended control functions enabled.	20:1	Additional function for DHW heating.
		20:2	Differential temperature control 2.
		20:3	Differential temperature control 2 and auxiliary function.
		20:4	Differential temperature control 2 for central heating backup.
		20:5	Thermostat function.
		20:6	Thermostat function and auxiliary function.
		20:7	Solar heating via external heat exchanger without additional temperature sensor.

"Solar" group (cont.)

Coding in the delivered condition		Possible change	
		20:8	Solar heating via external heat exchanger with additional temperature sensor.
		20:9	Solar heating of two DHW cylinders.
22:8	Start temperature differential for central heating backup: 8 K. Switching output [22] starts when the temperature at sensor [7] exceeds the temperature at sensor [10] by the selected value.	22:2 to 22:30	Start temperature differential for central heating backup is adjustable from 2 to 30 K.
23:4	Stop temperature differential for central heating backup: 4 K. Switching output [22] stops when the temperature at sensor [7] undershoots the stop point. The stop point is the sum of the temperature at sensor [10] and the value selected as stop temperature differential.	23:2 to 23:30	Stop temperature differential for central heating backup is adjustable from 1 to 29 K.
24:40	Start temperature for thermostat function 40 °C. Start temperature for thermostat function ≤ stop temperature for thermostat function: Thermostat function, e.g. for reheating. Switching output [22] is switched on when the temperature at sensor [7] undershoots the start temperature for the thermostat function.	24:0 to 24:100	Start temperature for thermostat function is adjustable from 0 to 100 K.

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"Solar" group (cont.)

Coding in the delivered condition		Possible change	
	Start temperature for thermostat function > stop temperature for thermostat function: Thermostat function, e.g. for utilising excess heat. Switching output [22] is switched on when the temperature at sensor [7] exceeds the start temperature for the thermostat function.		
25:50	Stop temperature for thermostat function 50 °C. Start temperature for thermostat function ≤ stop temperature for thermostat function: Thermostat function e.g. for reheating. Switching output [22] is switched off when the temperature at sensor [7] exceeds the start temperature for the thermostat function. Start temperature for thermostat function > stop temperature for thermostat function: Thermostat function e.g. for utilising excess heat. Switching output [22] is switched off when the temperature at sensor [7] undershoots the start temperature for the thermostat function.	25:0 to 25:100	Stop temperature for thermostat function is adjustable from 0 to 100 K.
26:1	Priority for DHW cylinder 1 – with alternate heating.	26:0	Priority for DHW cylinder 1 – without alternate heating.

"Solar" group (cont.)

Coding in the delivered condition		Possible change	
	Only when setting code "20:8".	26:2	Priority for DHW cylinder 2 – without alternate heating.
		26:3	Priority for DHW cylinder 2 – with alternate heating.
		26:4	Alternate heating without priority for either DHW cylinder.
27:15	Alternate heating time 15 min. The DHW cylinder without priority is heated at most for the duration of the set alternate heating time if the DHW cylinder with priority is heated up.	27:5 to 27:60	The alternate heating time is adjustable from 5 to 60 min.
28:3	Alternate pause time 3 min. After the selected alternate heating time for the DHW cylinder without priority has expired, the rise in collector temperature is captured during the alternate pause time.	28:1 to 28:60	The alternate pause time is adjustable from 1 to 60 min.

"Heating circuit 1", "Heating circuit 2", "Heating circuit 3" group

Coding

Coding in the delivered condition		Possible change	
A0:0	Without remote control.	A0:1	With Vitotrol 200A or Vitotrol 200RF; automatic recognition.
		A0:2	With Vitotrol 300A or Vitohome 300; automatic recognition.

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"Heating circuit 1", "Heating circuit 2", "Heating circuit 3" group (cont.)

Coding in the delivered condition		Possible change	
A1:0	Only with Vitotrol 200A or Vitotrol 200RF: All possible settings at the remote control can be accessed.	A1:1	Only party mode can be set at the remote control.
A2:2	Cylinder priority for heating circuit pump and mixer.	A2:0	Without cylinder priority applicable to heating circuit pump and mixer.
		A2:1	Cylinder priority applies only to mixers.
A3:2	Outside temperature below 1 °C: Heating circuit pump "ON". Outside temperature above 3 °C: Heating circuit pump "OFF".	A3:-9 to A3:15	Heating circuit pump "ON/OFF" (see the following table).

! **Please note**
When selecting a value below 1 °C, there is a risk of pipes outside the thermal envelope of the building freezing up.
Standby mode in particular should be taken into consideration, e.g. during holidays.

Parameters Address A3:...	Heating circuit pump "ON"	"OFF"
-9	-10 °C	-8 °C
-8	-9 °C	-7 °C
-7	-8 °C	-6 °C
-6	-7 °C	-5 °C
-5	-6 °C	-4 °C
-4	-5 °C	-3 °C
-3	-4 °C	-2 °C
-2	-3 °C	-1 °C
-1	-2 °C	0 °C
0	-1 °C	1 °C
1	0 °C	2 °C
2 to 15	1 °C to 14 °C	3 °C to 16 °C

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"Heating circuit 1", "Heating circuit 2", "Heating circuit 3" group (cont.)

Coding in the delivered condition		Possible change	
A4:0	With frost protection.	A4:1	No frost protection; this setting is only possible if code "A3:-9" has been selected. ! **Please note** Information regarding coding address "A3".
A5:5	With heating circuit pump logic function (economy mode): Heating circuit pump "OFF" when the outside temperature (AT) is 1 K higher than the set room temperature (RT_{set}) AT > RT_{set} + 1 K.	A5:0	Without heating circuit pump logic function.
		A5:1 to A5:15	With heating circuit pump logic function: Heating circuit pump "OFF"; see the following table.

Parameter address A5:...	With heating circuit pump logic function: Heating circuit pump "OFF"
1	AT > RT_{set} + 5 K
2	AT > RT_{set} + 4 K
3	AT > RT_{set} + 3 K
4	AT > RT_{set} + 2 K
5	AT > RT_{set} + 1 K
6	AT > RT_{set}
7 to 15	AT > RT_{set} - 1 K AT > RT_{set} - 9 K

"Heating circuit 1", "Heating circuit 2", "Heating circuit 3" group (cont.)

Coding in the delivered condition		Possible change	
A6:36	Extended economy mode **disabled**.	A6:5 to A6:35	Extended economy control enabled, i.e. the burner and heating circuit pump will stop and the mixer close at a variable value, adjustable between 5 and 35 °C plus 1 °C. The base value is the adjusted outside temperature. This value is based on the actual outside temperature and a time constant, which takes the cooling down of an average building into consideration.
A7:0	Only for heating circuits with mixer: Without mixer economy function.	A7:1	With mixer economy function (extended heating circuit pump logic): Heating circuit pump also "OFF": ■ If the mixer has been closed for longer than 12 min. Heating circuit pump "ON": ■ If the mixer changes to control function. ■ If there is a risk of frost.
A9:7	With pump idle time (heating circuit pump "OFF") (see function description on page 70).	A9:0	Without pump idle time.
		A9:1 to A9:15	With pump idle time, adjustable from 1 to 15. 1: short idle time 15: long idle time Max. idle time 10 h.
AA:2	Never adjust.		
b0:0	With remote control:*1 Heating mode/reduced mode: weather-compensated.	b0:1	Heating mode: weather-compensated Reduced mode: with room temperature hook-up
		b0:2	Heating mode: with room temperature hook-up

*1 *Change code only for the heating circuits with mixer.*

"Heating circuit 1", "Heating circuit 2", "Heating circuit 3" group (cont.)

Coding in the delivered condition		Possible change	
			Reduced mode: weather-compensated
		b0:3	Heating mode/reduced mode: with room temperature hook-up
b2:8	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*1 Room influence factor 8.	b2:0	Without room influence.
		b2:1 to b2:64	Room influence factor adjustable from 1 to 64.
b5:0	With remote control:*1 No room temperature-dependent heating circuit pump logic function.	b5:1 to b5:8	Heating circuit pump logic function, see the following table.

Parameter address b5:...	With heating circuit pump logic function: Heating circuit pump "OFF"	Heating circuit pump "ON"
1	$RT_{actual} > RT_{set} + 5$ K	$RT_{actual} < RT_{set} + 4$ K
2	$RT_{actual} > RT_{set} + 4$ K	$RT_{actual} < RT_{set} + 3$ K
3	$RT_{actual} > RT_{set} + 3$ K	$RT_{actual} < RT_{set} + 2$ K
4	$RT_{actual} > RT_{set} + 2$ K	$RT_{actual} < RT_{set} + 1$ K
5	$RT_{actual} > RT_{set} + 1$ K	$RT_{actual} < RT_{set}$
6	$RT_{actual} > RT_{set}$	$RT_{actual} < RT_{set} - 1$ K
7	$RT_{actual} > RT_{set} - 1$ K	$RT_{actual} < RT_{set} - 2$ K
8	$RT_{actual} > RT_{set} - 2$ K	$RT_{actual} < RT_{set} - 3$ K

Coding in the delivered condition		Possible change	
b6:0	With remote control:*1 Without quick heat-up/ quick setback.	b6:1	With quick heat-up/quick setback (see function description on page 69).
b7:0	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*1 Without start optimisation.	b7:1	With start optimisation, max. heat-up time offset 2 h 30 min.
		b7:2	With start optimisation, max. heat-up time offset 15 h 50 min.

*1 *Change code only for the heating circuits with mixer.*

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"Heating circuit 1", "Heating circuit 2", "Heating circuit 3" group (cont.)

Coding in the delivered condition		Possible change	
b8:10	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*1 Heat-up gradient start optimisation 10 min/K.	b8:11 to b8:255	Heat-up gradient adjustable from 11 to 255 min/K.
b9:0	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*1 Without learning start optimisation.	b9:1	With learning start optimisation.
C0:0	With remote control:*1 Without stop optimisation.	C0:1	With stop optimisation, max. setback time delay 1 h.
		C0:2	With stop optimisation, max. setback time delay 2 h.
C1:0	With remote control:*1 Without stop optimisation.	C1:1 to C1:12	With stop optimisation of setback time delay, adjustable from 10 to 120 min; 1 step ≙ 10 min.
C2:0	With remote control:*1 Without learning stop optimisation.	C2:1	With learning stop optimisation.
C3:125	Only for heating circuits with mixer: Mixer runtime 125 s.	C3:10 to C3:255	Runtime adjustable from 10 to 255 s.
C4:1	System dynamics: Mixer control characteristics	C4:0 to C4:3	Controller responds too quickly (cycles between "Open" and "Close"): select a lower value. Controller responds too slowly (temperature is not held sufficiently): select a higher value.

*1 *Change code only for the heating circuits with mixer.*

"Heating circuit 1", "Heating circuit 2", "Heating circuit 3" group (cont.)

Coding in the delivered condition		Possible change	
C5:20	Electronic minimum flow temperature limit 20 °C (only in operation with standard room temperature).	C5:1 to C5:127	Minimum limit adjustable from 1 to 127 °C.
C6:74	Electronic maximum flow temperature limit set to 75 °C.	C6:10 to C6:127	Maximum limit adjustable from 10 to 127 °C.
C8:31	With remote control and for the heating circuit, operation with room temperature hook-up must be programmed:*1 No room influence limit.	C8:1 to C8:30	Room influence limit adjustable from 1 to 30 K.
d5:0	With external heating program changeover (observe setting of coding address "5d", "5E" and "5F" and "91" in the **"General"** group): The heating program changes to "Constant room heating with reduced room temperature" or "Standby mode" (subject to the setting of the set reduced room temperature).	d5:1	The heating program changes to "Constant operation with standard room temperature".
d8:0	No heating program changeover via extension EA1.	d8:1	Heating program changeover via input DE1 at extension EA1.
		d8:2	Heating program changeover via input DE2 at extension EA1.
		d8:3	Heating program changeover via input DE3 at extension EA1.
E1:1	With remote control Vitotrol 200 and 300:	E1:0	Set day temperature adjustable from 3 to 23 °C.

*1 *Change code only for the heating circuits with mixer.*

"Heating circuit 1", "Heating circuit 2", "Heating circuit 3" group (cont.)

Coding in the delivered condition		Possible change	
	Set day temperature adjustable at the remote control from 10 to 30 °C.	E1:2	Set day temperature adjustable from 17 to 37 °C.
E2:50	With remote control: No display correction of the actual room temperature.	E2:0 to E2:49	Display correction –5 K to Display correction –01 K
		E2:51 to E2:99	Display correction +0.1 K to Display correction +4.9 K
F1:0	Screed function disabled.	F1:1 to F1:6	Only for heating circuits with mixer: Screed function adjustable in accordance with 6 optional temperature/time profiles (see page 71).
		F1:15	Constant flow temperature 20 °C (see page 71).
F2:8	Time limit for party mode or external heating program changeover via pushbutton: 8 h[*2]. ***Note*** *Observe settings of coding addresses "5d", "5E", "5F" in the* ***"General"*** *group, as well as "d5" and "d8" in the* ***"Heating circuit..."*** *group.*	F2:0	No time limit[*2].
		F2:1 to F2:12	Time limit adjustable from 1 to 12 h[*2].
F8:-5	Temperature limit for terminating the reduced mode -5 ºC, see example on page 74. Observe the setting of coding address "A3".	F8:+10 to F8:-60	Temperature limit adjustable from +10 to -60 °C.
		F8:-61	Function disabled.

[*2] *Party mode ends* ***automatically*** *in the "Heating and DHW" program, when the system changes over to operation with standard room temperature.*

"Heating circuit 1", "Heating circuit 2", "Heating circuit 3" group (cont.)

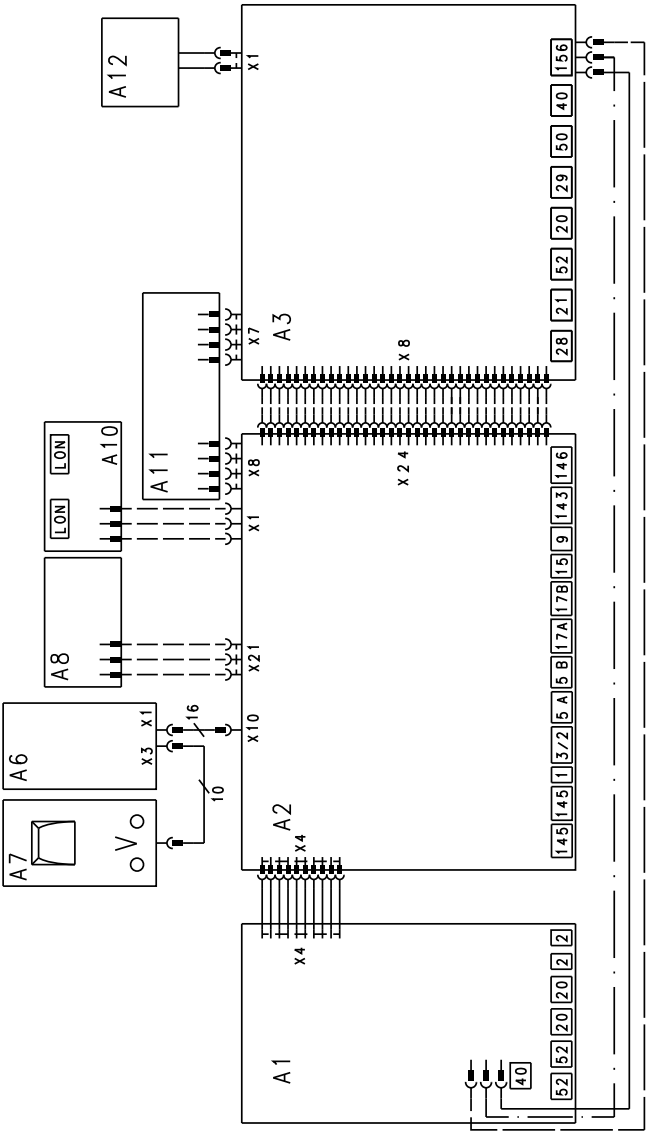
Coding in the delivered condition		Possible change	
F9:-14	Temperature limit for raising the reduced set room temperature -14 ºC, see example on page 74.	F9:+10 to F9:-60	Limit for raising the set room temperature to the value selected for standard mode adjustable from +10 to -60 °C.
FA:20	Raising the set boiler water or flow temperature by 20 % when changing from operation with reduced room temperature to operation with standard room temperature. See example on page 75.	FA:0 to FA:50	Temperature increase adjustable from 0 to 50 %.
Fb:30	Duration for raising the set boiler water or flow temperature (see coding address "FA") 60 min. See example on page 75.	Fb:0 to Fb:150	Duration adjustable from 0 to 300 min; 1 step ≙ 2 min.

Connection and wiring diagrams

For the Vitotronic 100, see boiler service instructions

Connection and wiring diagrams

Overview

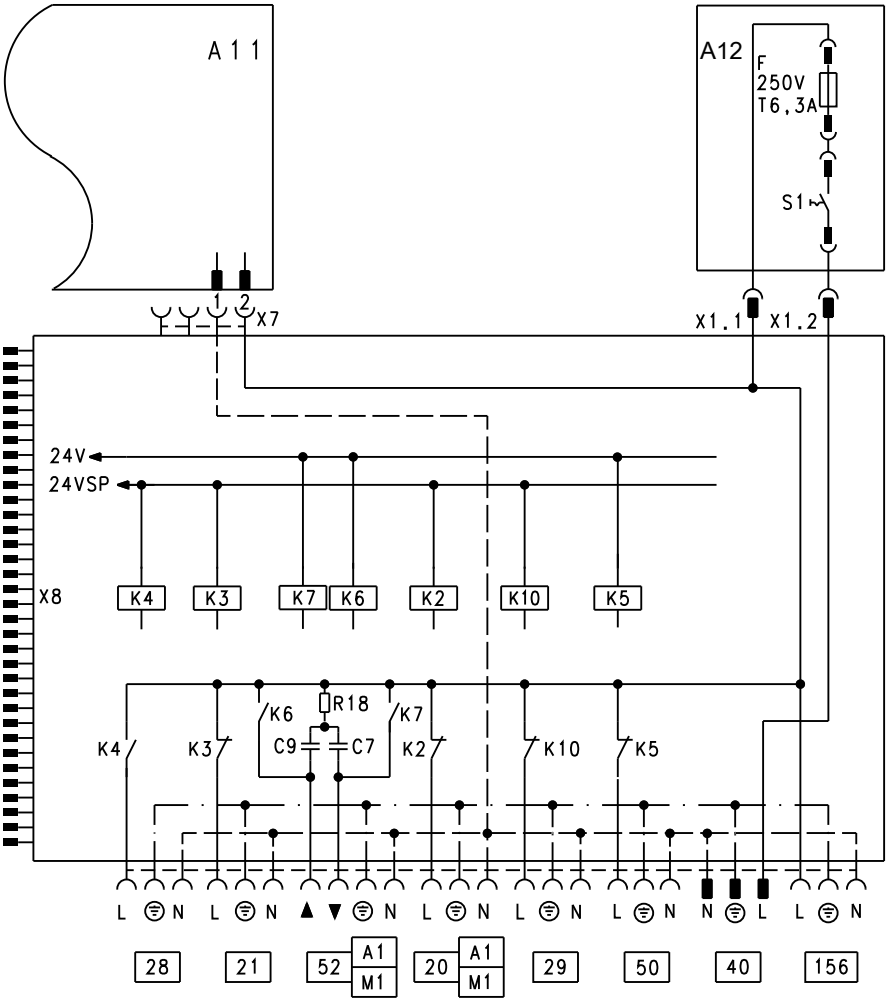


Connection and wiring diagrams (cont.)

A1 Extension PCB heating circuits 2 and 3 (accessory)
A2 PCB, low voltage
A3 PCB 230 V~
A6 Programming unit
A7 Optolink PCB/emissions test switch
A8 PCB
A10 LON communication module (accessory)
A11 Power supply unit PCB
A12 Programming unit ON/OFF switch
X... Electrical interfaces

Connection and wiring diagrams (cont.)

PCB 230 V~



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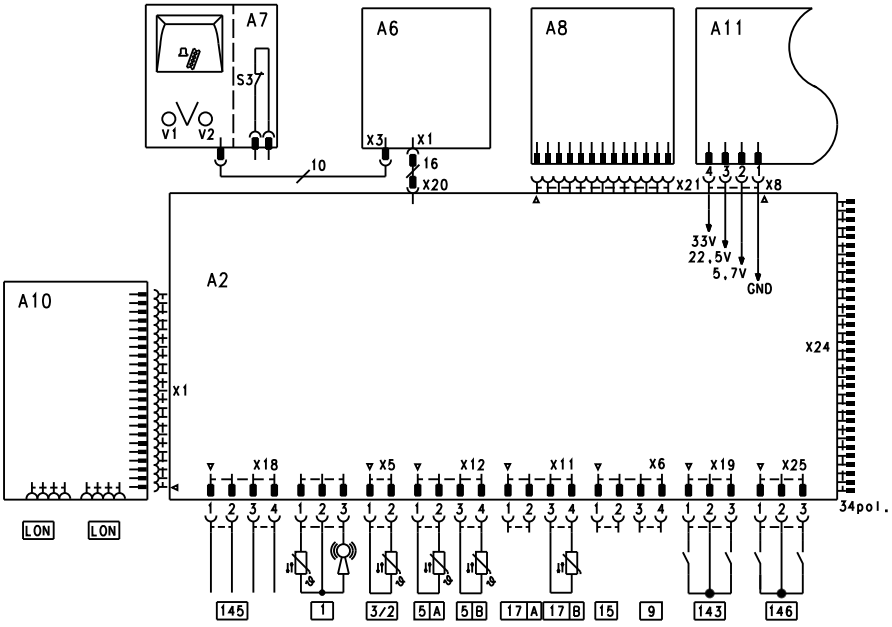
Connection and wiring diagrams (cont.)

20	Heating circuit pump or Primary pump, primary store system	50	Central fault message output (on site)
		52	Motor for 3-way mixing valve, primary store system
21	Circulation pump for cylinder heating (accessory)	156	Power supply for accessories
		F	MCB/Fuse
28	DHW circulation pump (accessory)	K2-K10	Relay
		S1	ON/OFF switch
29	Distribution pump	X...	Electrical interfaces
40	Power supply 230 V/50 Hz		

PCB, low voltage



1	Outside temperature sensor/ radio clock receiver (accessories)	5B	Cylinder temperature sensor 2 (accessory)
		9	No function
3/2	Common flow temperature sensor	15	No function
		17A	No function
5A	Cylinder temperature sensor	17B	Temperature sensor primary store system

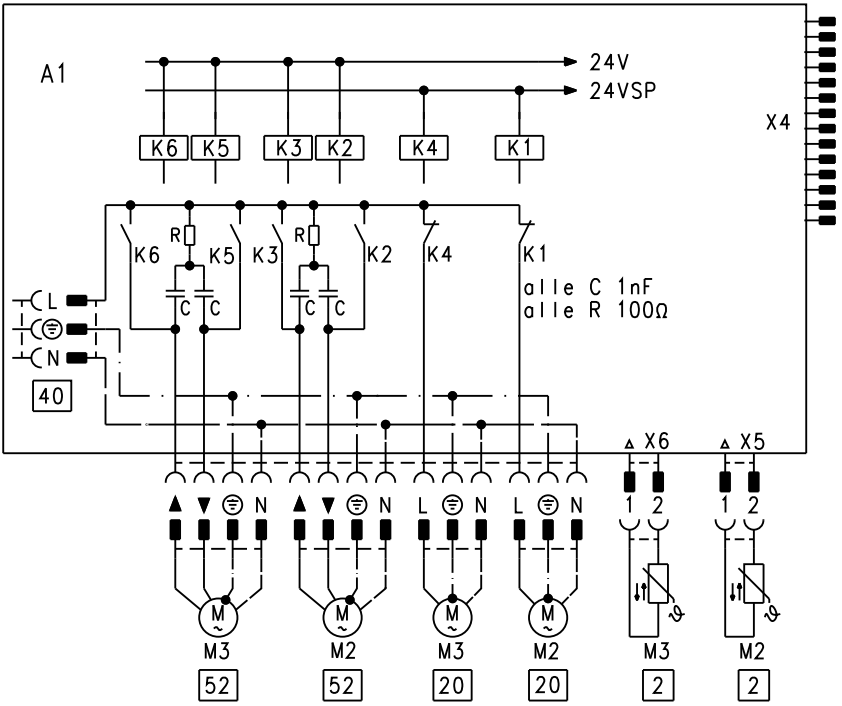
Connection and wiring diagrams (cont.)

143	External hook-up	S3	Emissions test switch
145	KM BUS subscriber (accessory)	V1	Fault indicator (red)
146	External hook-up	V2	ON indicator (green)
LON	Cable for data exchange between control units (accessories)	X...	Electrical interfaces

PCB, extension for heating circuits 2 and 3 with mixer

Accessory, part no. 7164 403.

For connection of 2 extension kits for mixer.



2	Flow temperature sensors
20	Heating circuit pumps
40	Power supply
52	Mixer motors
K1-K6	Relay
X	Electrical interfaces

Sensors

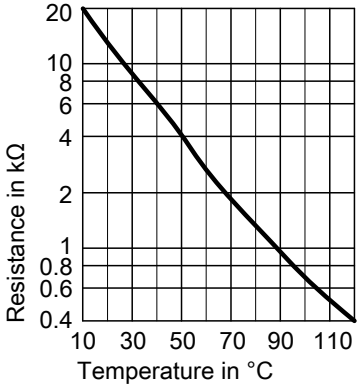
Cylinder, flow and room temperature sensor

Note

- *The flow temperature sensor can be used as a contact or immersion temperature sensor.*
- *The flow temperature sensor of the mixer extension kit is a contact temperature sensor.*
- *The room temperature sensor is connected to terminals 3 and 4 in the Vitotrol 300A.*

Installation and service instructions for Vitotrol 300A

Viessmann NTC 10 kΩ (blue identification)

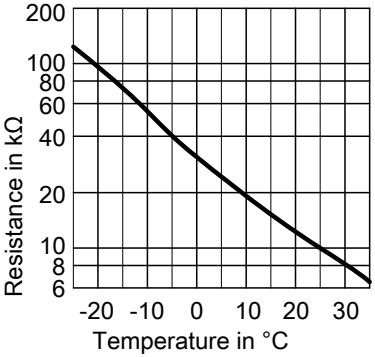


1. Pull corresponding plug.
2. Check the sensor resistance and compare it with the curve.
3. In the case of severe deviation, check the installation and replace the sensor if required.

Sensors (cont.)

Outside temperature sensor

Viessmann NTC 10 kΩ

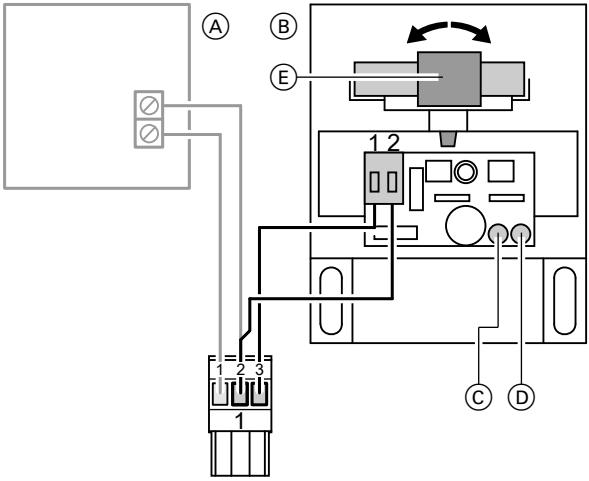


1. Pull plug [1].
2. Check the sensor resistance across plug terminals "1" and "2" and compare with the curve.
3. If the results are very different from the curve, disconnect the wires from the sensor and repeat the test on the sensor.
4. Depending on the result, replace the lead or the outside temperature sensor.

Radio clock receiver, part no. 7450 563

The radio clock receiver sets the time at the control unit and any remote control that may be connected, fully automatically.

Radio clock receiver, part no. 7450 563 (cont.)



Ⓐ Outside temperature sensor
Ⓑ Radio clock receiver
Ⓒ Green LED
Ⓓ Red LED
Ⓔ Aerial

Connection

2-core lead, length max. 35 m with a cross-section of 1.5 mm^2.

Check reception

During reception, the green LED on the radio clock receiver flashes.

If the red LED flashes, rotate the aerial until reception is confirmed by the flashing of the green LED.

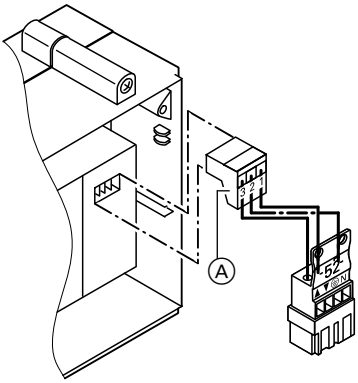
Specification

IP rating	IP 43
Permissible ambient temperature during operation, storage and transport	–40 to + 70 °C

Extension kit, mixer, part no. 7441 998

Components:
- Mixer motor, with 4.0 m connecting cable (not for flanged mixer)
- Plug for connecting the heating circuit pump
- Flow temperature sensor as contact temperature sensor for capturing the flow temperature, with 5.8 m long lead.

Changing the rotational direction (if required)



1. Pull 3-pole plug Ⓐ from mixer motor, turn 180 ° and refit.
2. Check the rotational direction.

▲ Mixer "Open"
▼ Mixer "Close"

Manual mixer adjustment

Lift the motor lever, unhook the mixer handle and pull plug Ⓐ.

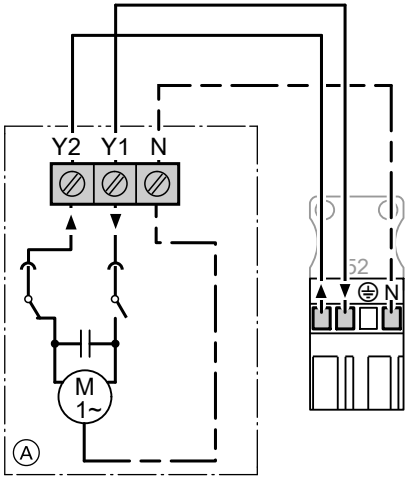
Extension kit, mixer, part no. 7441 998 (cont.)

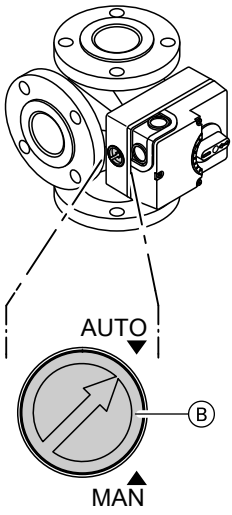
Mixer motor specification

Rated voltage	230 V~
Rated frequency	50 Hz
Power consumption	4 W
Safety category	II
IP rating	IP 42 to EN 60 529, ensure through design/installation
Permissible ambient temperature	
■ During operation	0 to +40 °C
■ During storage and transport	–20 to +65 °C

Mixer motor, part no. 9522 487

For heating mixer DN 40 and 50.





Ⓐ Mixer motor
Ⓑ Coupling switch

▲ Mixer open
▼ Mixer closed

Mixer motor, part no. 9522 487 (cont.)

Changing the rotational direction

Interchange cores at terminals "Y1" and "Y2".

Checking the rotational direction

The mixer is moved to "Open" and "Closed" using the control unit relay test.

Manual mixer adjustment

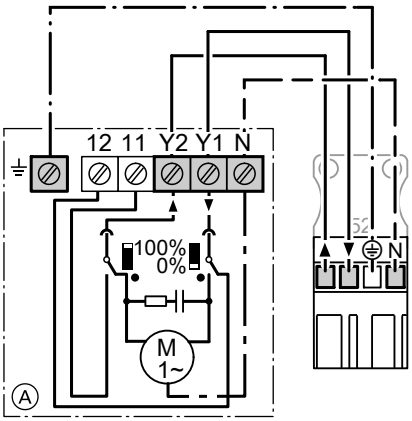
Coupling switch Ⓑ set to "MAN".

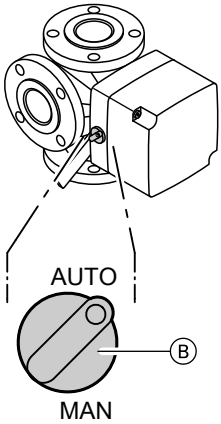
Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Power consumption	3 W
IP rating	IP 42
Torque	5 Nm
Runtime for 90° ∢	135 s

Mixer motor, part no. Z004 344

For heating mixer DN 65 and 100.





Ⓐ Mixer motor
Ⓑ Coupling switch

▲ Mixer open
▼ Mixer closed

Mixer motor, part no. Z004 344 (cont.)

Changing the rotational direction

Interchange cores at terminals "Y1" and "Y2".

Checking the rotational direction

The mixer is moved to "Open" and "Closed" using the control unit relay test.

Manual mixer adjustment

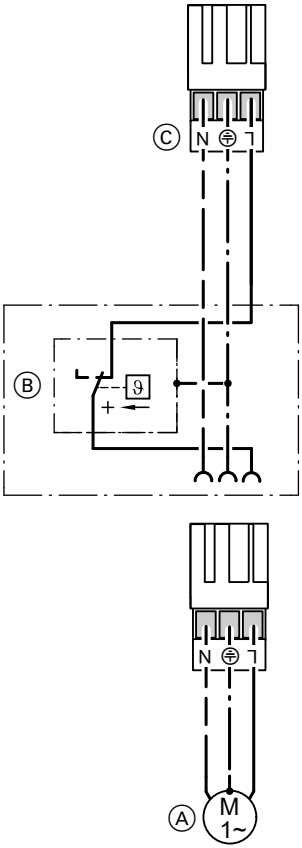
Coupling switch Ⓑ set to "MAN".

Specification

Rated voltage	230 V~
Rated frequency	50 Hz
Power consumption	4 W
IP rating	IP 42
Torque	12 Nm
Runtime for 90° ◁	125 s

Temperature limiter for limiting the maximum temperature

Immersion thermostat, part no. 7151 728
Contact thermostat, part no. 7151 729



Ⓐ Heating circuit pump
Ⓑ Control thermostat (temperature limiter)
Ⓒ Plug 20 of the thermostat (temperature limiter) to the control unit

Electromechanical temperature limiter according to the liquid expansion principle.
Switches the heating circuit pump off when the set value has been exceeded. In such cases, the flow temperature reduces only slowly, i.e. it may be several hours before the system restarts again automatically.

Specification

Setting range	30 to 80 °C
Terminals	Screw terminals for 1.5 mm²
Switching differential	
■ Immersion thermostat	max. 11 K
■ Contact thermostat	max. 14 K

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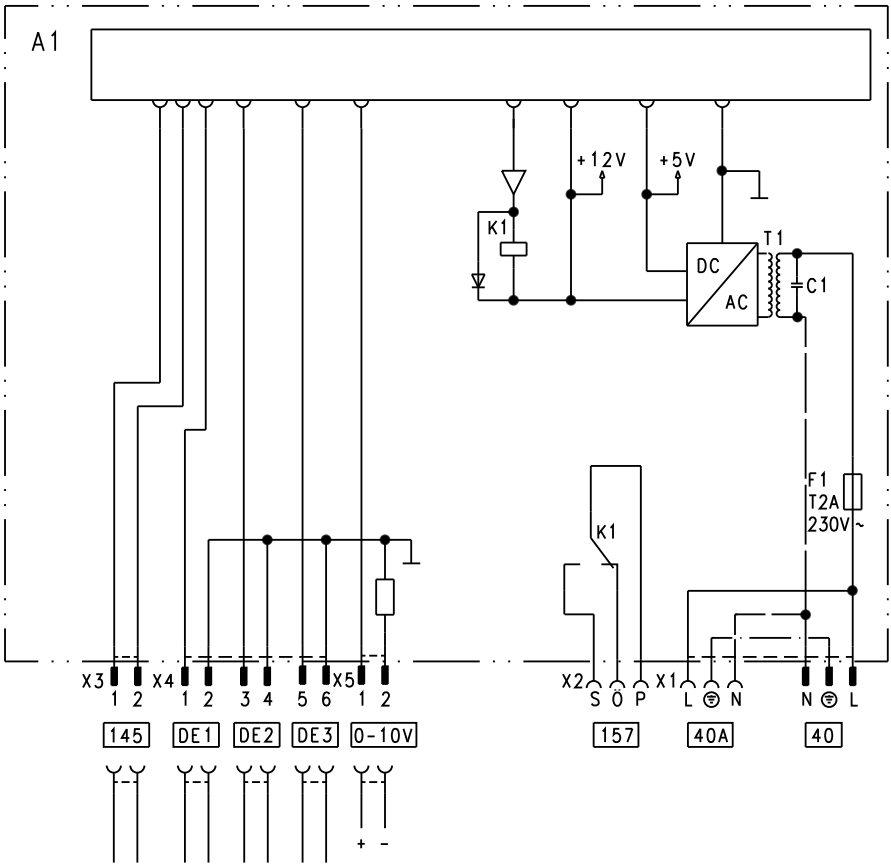
Extension EA1, part no. 7452 091



DE1	Digital input 1
DE2	Digital input 2
DE3	Digital input 3
0 - 10 V	0 - 10 V input
40	Power supply
40 A	Power supply for additional accessories
157	Switching output (floating)
145	KM BUS

Digital data inputs DE1 to DE3

Functions:

- External heating mode changeover, separate for heating circuits 1 to 3
- External blocking
- External blocking with fault message input
- External demand with minimum system flow temperature

Extension EA1, part no. 7452 091 (cont.)

- Fault message input
- Brief operation of the DHW circulation pump

When connecting external contacts, observe the requirements of safety category II, i.e. 8.0 mm air and creep paths, and 2.0 mm insulation thickness to 'live' parts.

Input function assignment

Select the input functions by means of the following codes in the **"General"** group at the boiler control unit:
- DE1: Coding address "5d"
- DE2: Coding address "5E"
- DE3: Coding address "5F"

Assigning the heating program changeover function to the heating circuits

The allocation of the heating program changeover **to the relevant heating circuit** is selected via coding address "d8" in the **"Heating circuit..."** group:
- Code "d8:1": Changeover via input DE1
- Code "d8:2": Changeover via input DE2
- Code "d8:3": Changeover via input DE3

The effect of the heating program changeover is selected via coding address "d5" in the **"Heating circuit..."** group.

Duration of the changeover
- Contact constantly closed:
  The changeover is enabled as long as the contact is closed.
- Contact only closed briefly via push-button:
  The changeover is enabled for the time selected in coding address "F2" in the **"Heating circuit..."** group.

DHW circulation pump runtime for brief operation

The runtime is adjusted via coding address "12" in the **"General"** group.

Analogue input 0 - 10 V

The 0 - 10 V hook-up provides an additional set flow temperature:
0 - 1 V is seen as "no set flow temperature".

Note
Ensure DC separation between the negative pole and the earth conductor of the on-site voltage source.

Extension EA1, part no. 7452 091 (cont.)

Coding address "1E" in the **"General"** group:

- "1E:0" ≙ temperature demand adjustable in the range from 0 to 100°C
  1 V ≙ 10 °C set value change
  10 V ≙ 100 °C set value change
- "1E:1" ≙ temperature demand adjustable in the range from 30 to 120°C
  1 V ≙ 30 °C set value change
  10 V ≙ 120 °C set value change

Output 157

Connection of a central fault message facility or signalling reduced mode (reduction of the heating circuit pump speed).
Select the function of output 157 via coding address "5C" in the **"General"** group.

Parts list Vitotronic 100

Boiler service instructions

Parts list Vitotronic 300-K

When ordering spare parts:
Quote the part and serial numbers (see type plate Ⓐ) and the position numbers of the required part (as per this parts list).
Standard parts are available from your local supplier.

Parts

0001 Hinges
0008 Supporting stay
0011 Programming unit ON/OFF switch
0013 Casing front
0014 PCB cover
0015 Front flap
0016 Casing, rear section
0017 Wall mounting support
0018 Programming unit
0019 Fascia, left
0020 Fascia, right
0021 Ribbon cable, 10-pole
0022 Connecting cable, mixer extension PCB
0023 Connecting cable, emissions test switch
0024 Fuse holder cap for control fuse
0025 Fuse holder for control fuse
0037 Emissions test switch, single-pole
0038 2-pole switch (ON/OFF switch)
0040 Outside temperature sensor [1]
0042 Immersion temperature sensor (boiler water temperature sensor, cylinder temperature sensor, flow temperature sensor low loss header)
0045 Contact temperature sensor (flow temperature sensor)
0048 PCB, extension for heating circuits 2 and 3 with cover
0049 Main PCB low voltage
0050 PCB
0051 Optolink PCB/emissions test switch
0052 Main PCB 230 V~
0054 Power supply unit PCB
0056 LON communication module
0057 LON cable
0057 LON terminator
0074 Connecting cable, 16-pole
0080 Installation and service instructions
0081 Operating instructions
0092 Fuse 6.3 A (slow)/250 V~
0100 Plugs for sensors (7 pce)
0101 Plugs for pumps (3 pce)
0102 Plug [52] (3 pce)
0103 Mains outlet plug [156] (3 pce)
0104 Power plug [40] (3 pce)
0106 Plug [50] (3 pce)
0108 Plug [143], [145], [146]
Ⓐ Type plate

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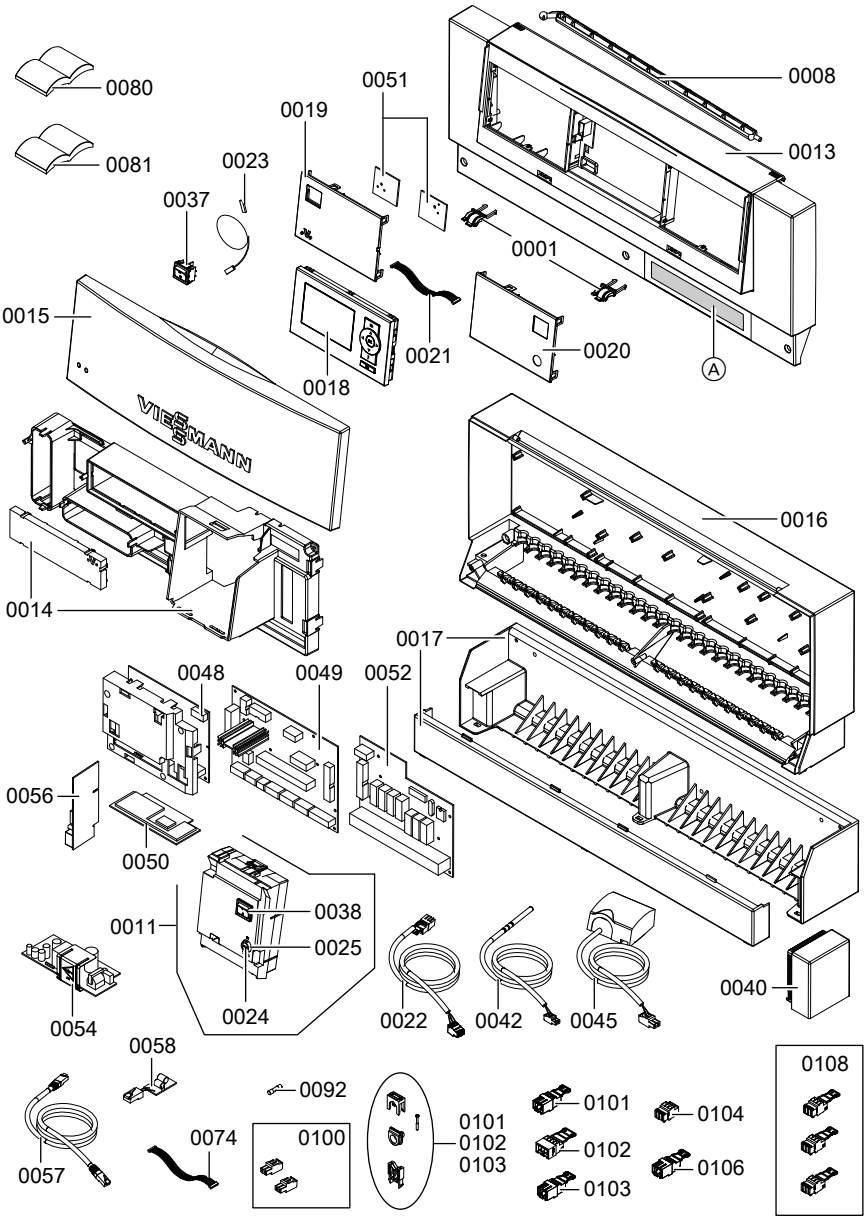
Parts list Vitotronic 300-K (cont.)



Specification Vitotronic 100

See boiler service instructions

Specification Vitotronic 300-K

Rated voltage	230 V~
Rated frequency	50 Hz
Rated current	6 A~
Power consumption	10 W
Safety category	I
IP rating	IP 20 D to EN 60529, ensure through design/installation
Function	Type 1 B to EN 60730-1
Permiss. ambient temperature	
■ During operation	0 to +40 °C Installation in living spaces and boiler rooms (standard ambient conditions)
■ During storage and transport	–20 to +65 °C
Rated relay output breaking capacity at 230 V~	
[20] Heating circuit pump or Primary pump, primary store system	4 (2) A~*3
[21] Circulation pump for cylinder heating	4 (2) A~*3
[28] DHW circulation pump	4 (2) A~*3
[29] Distribution pump	4 (2) A~*3
[50] Output for central fault message	4 (2) A~*3
[52] Mixer motor or Motor, 3-way mixing valve, primary store system	0.2 (0.1) A~*3

*3 *Total max. 6 A~.*

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Applicability

Serial No.:
7441817 7498907

Viessmann Werke GmbH&Co KG
D-35107 Allendorf
Telephone: +49 6452 70-0
Fax: +49 6452 70-2780
www.viessmann.com

Viessmann Limited
Hortonwood 30, Telford
Shropshire, TF1 7YP, GB
Telephone: +44 1952 675000
Fax: +44 1952 675040
E-mail: info-uk@viessmann.com

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